

# ANIMAL KEEPERS' FORUM

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*Seasons Greetings from the AAZK Board of Directors and Staff*

**December 2011**

**The Journal of the American Association of Zoo Keepers, Inc.**

**ANIMAL KEEPERS' FORUM**, 3601 S.W. 29th St., Suite 133, Topeka, KS 66614-2054

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also serves as AAZK Liaison to the American Zoo & Aquarium Association (AZA)

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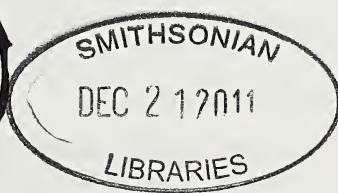


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38th Anniversary - 1974 - 2012

## MISSION STATEMENT

(Revised April 2009)

American Association of Zoo Keepers, Inc.

*The American Association of Zoo Keepers, Inc. exists to advance excellence in the animal keeping profession, foster effective communication beneficial to animal care, support deserving conservation projects, and promote the preservation of our natural resources and animal life.*

**About the Cover** - This month's cover is titled "Snow Monkey" and was generously donated by ©Daniel J. Cox/NaturalExposures.com. This young Japanese Macaque (*Macaca fuscata*) spent nearly an hour playing with this snowball at the Jigokudani Monkey Park in Japan. Each morning the monkeys would come down to the hot springs to soak in the steaming water. After relaxing for several hours the younger individuals would often get very active and for this little guy that included finding this snow ball and carrying it around. Japanese macaques are often referred to as snow monkeys because they live in areas where snow covers the ground during the winter season. Other than humans, Japanese macaques live in the coldest, most northerly climate of all primates. It is the macaques of the Jigokudani Monkey Park in Japan that are famous for visiting the hot springs in winter to keep warm. These macaques have developed the unusual behaviors of bathing together in hot springs and rolling snowballs for fun.

Daniel J. Cox's photography has appeared in the *Animal Keepers' Forum* in the dedicated issues on climate change and polar bears. To purchase a print of this cover photo, or to see the catalog of Daniel's entire collection, check out his website at [NaturalExposures.com](http://NaturalExposures.com).

*Natural Exposures*  
Daniel J. Cox

## Please Note New Monthly Deadline and Contact Information

Articles sent to *Animal Keepers' Forum* will be reviewed by the editorial staff for publication. Articles of a research or technical nature will be submitted to one or more of the zoo professionals who serve as referees for *AKF*. No commitment is made to the author, but an effort will be made to publish articles as soon as possible. Lengthy articles may be separated into monthly installments at the discretion of the editor. The editor reserves the right to edit material without consultation unless approval is requested in writing by the author. Materials submitted will not be returned unless accompanied by a stamped, self-addressed, appropriately-sized envelope. Telephone, fax or email contributions of late-breaking news or last-minute insertions are accepted as space allows. **Phone (330) 483-1104; FAX (330) 483-1444; email is [shane.good@azk.org](mailto:shane.good@azk.org)** If you have questions about submission guidelines, please contact the Editor. Submission guidelines are also found in the Members Only section of the AAZK website.

**Deadline for each regular issue is the 3rd of the preceding month.  
Dedicated issues may have separate deadline dates and will be noted by the Editor.**

Articles printed do not necessarily reflect the opinions of the *AKF* staff or the American Association of Zoo Keepers, Inc. Publication does not indicate endorsement by the Association.

Items in this publication may be reprinted providing credit to this publication is given and a copy of the reprinted material is forwarded to the Editor. If an article is shown to be separately copyrighted by the author(s), then permission must be sought from the author(s). Reprints of material appearing in this journal may be ordered from the Editor. Regular back issues are available for \$4.00 each. Special issues may cost more.

### **E-Mail Addresses:**

You may reach Barbara Manspeaker at AAZK Administrative Offices at: [azkoffice@zk.kscoxmail.com](mailto:azkoffice@zk.kscoxmail.com)  
You may reach Shane Good and *Animal Keepers' Forum* at: [shane.good@azk.org](mailto:shane.good@azk.org)

### **Mailing Address:**

AAZK, Inc., 3601 SW 29th St., Suite 133, Topeka, KS 66614-2054

<p><b>AAZK website Address: <a href="http://www.azk.org">www.azk.org</a></b> <b>BFR Website: <a href="http://azkbfr.org">http://azkbfr.org</a></b></p>
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# *Scoops and Scuttlebutt*

## **Reminder to all Chapters on Recharter Process for 2012**

All AAZK Chapters are reminded that the rechartering of all Chapters will begin in January of 2012. Rechartering packet information will be sent electronically via email to the email address your Chapter has provided to the Administrative Office. These emails will be sent the first week in January. **NOTE:** If your Chapter has changed its email contact since you completed your 2011 recharter forms, you need to notify Barbara Manspeaker immediately at [aazkoffice@zk.kscoxmail.com](mailto:aazkoffice@zk.kscoxmail.com) so that your recharter materials are properly received. Recharter packets for 2012 are due back at the Administrative Office by **15 February 2012**.

Your prompt compliance in filling out the recharter packet is a critical part of maintaining our status as a 501(c)(3) nonprofit association. If you do not receive your recharter materials by early January, please contact Barb at the Administrative Office at the email address above or by calling 785-273-9149.

***Did you know? There are three key things that keep AAZK, Inc. financially solvent throughout the fiscal year: Your AAZK memberships, AAZK conferences, and the generosity of Chapters towards AAZK, Inc., especially at recharter time. Please keep this in mind as you complete your recharter packets. Your Chapter donations at recharter time make all the difference for this Association.***

## **Join the Flock!**

The following bird TAGs [Taxon Advisory Groups] have studbook vacancies. Becoming a Studbook Keeper is an excellent opportunity to develop professional relationships with Program Leaders from AZA-accredited institutions, and become familiar with the management structure of TAGs and the Wildlife Conservation and Management Committee (WCMC). If you are interested in any of the studbooks below, please contact the TAG Chair.

Please note the following AZA stipulations: Individuals interested in becoming a Studbook Keeper must be a current AZA member, be employed by and receive support from an AZA-accredited zoo or aquarium, Certified Related Facilities, or by an Approved Non-Member participant, and must complete the Population Management I Professional Training course within two years of appointment.

Piciformes TAG: Contact Mike Macek [Macek@stlzoo.org](mailto:Macek@stlzoo.org)  
**Red and yellow barbet**

PACCT [Passeriformes, Apodiformes, Coliiformes, Caprimulgiformes & Trogoniformes] TAG:  
Contact Martin Vince [mvince@riverbanks.org](mailto:mvince@riverbanks.org)  
**Snowy headed robin chat**  
**Common Shama thrush**  
**Emerald starling**

Ciconiiformes/Phoenicopteriformes TAG: Contact Chris Brown [Chris.Brown@dallaszoo.com](mailto:Chris.Brown@dallaszoo.com)  
**Roseate spoonbill**  
**Caribbean flamingo**

Gruiformes TAG: Contact Fred Beall [fbeall@zooneewengland.com](mailto:fbeall@zooneewengland.com)  
**Black crane**

Galliformes TAG: Contact Chris Holmes [cholmes@houstonzoo.org](mailto:cholmes@houstonzoo.org)  
**Crested wood partridge**

# From the President

## Foster the Wonder

It's no secret that nature contains many forms of hidden marvels. As animal care specialists we see this in our daily routines. Unique adaptations are found in many of the species that we care for, whether delicate invertebrates or mega-fauna; whether terrestrial or aquatic. It is very evident to us how amazing our animals are. In fact, anyone listening in on a conversation among keepers will undoubtedly hear many tales of how specialized our animals are with their amazing adaptations. We work in an amazing profession. We work with amazing animals. Many of us work with endangered species. And each day that we work, we continue, hopefully, to "foster the wonder," getting past the difficult parts of our profession. "Foster the wonder" was a phrase that was found in an excerpt from a paper that was posted in our department hall. It had neither title nor author but the message, though simple, was loud and clear:

*Working in a zoo is an extremely physically demanding job that requires self-discipline, self-motivation and independent thinking. It is good, honest, hard work that provides the opportunities for direct and indirect animal interactions. The satisfaction in knowing that, due to my actions, a difference has been made for the better in an animal's quality of life, allows me to sleep very well at night...*

*...As professionals we must accept the things we cannot change, but work to change the things we can. We must all start within ourselves, for our attitude affects all those around us. Life is too short, and this job too demanding, not to be proud of what we do. The challenge is to find a way to focus all the negative energy into a positive and constructive manner. Take time to "foster the wonder" -- it is the single most important step in keeping the faith.*

I wonder how many of us take time to "foster the wonder" during our daily routines. Personally, there are some mornings when my brain is swirling with thoughts of procedures, vet checks, diet changes, animal moves, and meetings; multiple tasks to accomplish by day's end. But when I encounter a guest, that swirling comes to a standstill and the chance to share the uniqueness of my animals shifts my mindset to a completely different arena. Those previously mentioned tasks are still visible on my clipboard, but my immediate mission is to "foster the wonder" and share some of the special qualities of my animals.

### Triple Crown of the Conservation Conversation

For most of us working in institutions where we can interact with the public, we have opportunities to share some of these unique characteristics and adaptations. In fact, it is part of the "Triple Crown of the Conservation Conversation", as I like to call it. When interacting with guests, our goal as keepers is to connect them to wildlife, becoming the bridge that brings them closer to having a greater concern about the conservation of our planet and ways that they can become involved in helping to make a difference. The "Triple Crown" that I mentioned previously, is a very simple formula that we use at my institution and many others. When speaking with your guests, whether for one minute or 20, it is a good rule of thumb to incorporate the following in your conversation:

- The uniqueness of your animal and its habitat
- How you or your institution is involved in conservation
- Ways that your guest can get involved.

It's an effective formula and helps truly connect the guest to your animal; giving them key information about your species, institutional involvement in conservation, and providing them with a way to get involved in being a champion for conservation.



## “Imitation is the Sincerest Form of Flattery.”

As keepers, we share the wonder with the general public; in short, we teach others about the marvels of nature. Lately, however, much attention has been focused on how nature teaches us, a role-reversal that has become the new buzz word in the animal care industry: Biomimicry. It was first coined in the 1980's but made popular in the late 1990's by Janine Benyus in her book "*Biomimicry: Innovation Inspired by Nature*." Biomimicry is simply looking at nature's designs to solve technological problems. It's not a unique concept; Leonardo Da Vinci was influenced by birds when he designed his early renditions of flying machines. The Wright brothers, likewise, studied the flight of birds and applied those concepts to the design of their airplane prototype. Back in 1941 a Swiss engineer was inspired by the small hooks found on burrs and developed Velcro®, a common, everyday item that is used everywhere from shoes to spacecraft. Looking at a natural design in the seed pod of a plant enabled the Swiss engineer to develop the widely used Velcro®. Today, engineers and scientists are looking toward nature's solutions to solve modern problems, taking notice of how nature seeks perfection, finding many examples of ecosystems that work, last and that are sustainable. This emulation of nature is another way for us to view and value nature. This is an incredible paradigm shift; biomimicry provides opportunities to gain beyond appreciation.

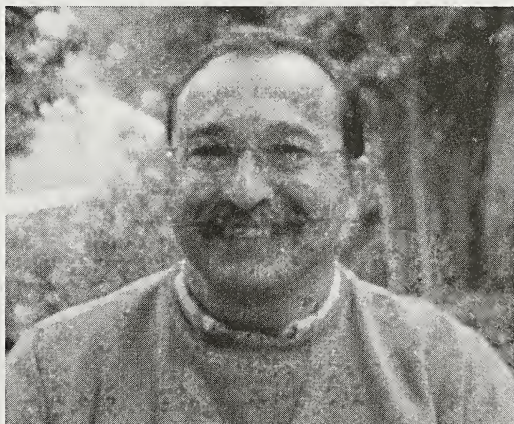
Biomimicry, however, is more than just looking at nature for ideas and designs. It also focuses on how nature works sustainably. Those concepts can be translated into efficient designs, meaning less fuel consumption and less pollution. In essence, technology today is looking to nature for answers on how to save our planet.

My institution is currently involved in studying biomimicry and is connecting corporations to wildlife; drawing them towards nature to help solve problems rather than seeking out nature for just resources. For me, it creates a whole new way in which I view the animals that I work with. For example, I marvel at how easily a honey badger (*Mellivora capensis*) is approximated toward injection training. This mighty *mustelid* of Africa does not even flinch when receiving its vaccination. I then realize that the skin of the honey badger is specially adapted to withstand the many bee stings it might encounter when raiding a beehive for larvae and then I am in greater awe. Special adaptations like this are evident throughout nature and economists, engineers and scientists are beginning to take notice for a completely different set of reasons. During your spare time, perform a search on biomimicry on the Internet and discover the different ways in which natural designs and systems are providing sustainable answers to technological problems. It's another way for you to share the uniqueness of your animals with others.

We all work with a great collection of animals: invertebrates or vertebrates, large or small. These incredible creatures are the reason for the passion that lies within us. They are what keep us coming back day after day, regardless of the weather, economy, or work conditions. We study, we learn, we appreciate. It's comforting to know that some of the species with which we work, may supply simple answers to complex problems. That's connecting people to wildlife on a completely different level!

Be proud of what you do, enjoy the animals with which you work and always remember, marvel at how complex and incredible they are, and no matter how trying your day is, remember to "foster the wonder."

Bob Cisneros



## **AAZK Chapters Help Underwrite AKF Production**

During the 2011 Chapter Recharter process earlier this year, five AAZK Chapters generously sent in donations to help cover the costs associated with the production of the *Animal Keepers' Forum*. We would like to thank them for their support in producing the Association's monthly professional journal.

For the December 2011 issue of *AKF* we wish to thank all of the members of the Point Defiance Chapter of the American Association of Zoo Keepers - *The Editors*.

### **The Point Defiance AAZK Chapter**

The Point Defiance AAZK Chapter is comprised of a dedicated group of members from many sectors of the zoo including; zoological, education, volunteers and youth volunteers. We are located in Tacoma, WA. Once a month our Chapter meets to discuss new business, eat, socialize and talk about fundraising ideas or upcoming events, and of course to decide where to send out conservation money! Our Chapter was the founder of the Clouded Leopard Project which has since become a non-profit organization. Besides supporting clouded leopard conservation we also have supported many other projects this past year including Bowling for Rhinos, the Red Panda Network, and the JAZA Relief effort in Japan. We also sponsored a carnivore education kit that was delivered to South East Asia by two of our members who traveled to take part in the Borneo Carnivore Conservation Symposium. All totaled we have raised over \$130,000 for different projects and have also offered travel grants to help our members attend different conferences throughout the years.

Our most exciting fundraising events this year have been restarting a Bowling for Rhinos fundraiser and our newest committee involves partnering with local businesses to raise funds for conservation. Our first event was Pints for Pint-sized Pandas and the money we raised went to the Red Panda Network. We tried Wii® Bowling for Rhinos this year and all the participants had a lot of fun. We raised about \$2,000 to support rhinos and look forward to repeating this event next year. Another fundraiser that has done well for us the past few years is Face Painting. We set up a booth at the zoo during some of the special event weekends and try to offer this about once a month during spring, summer and fall, ending with the zoo's Halloween celebration: Zoo Boo. Face painting has made over \$1,000 each year for the past few years!

Our largest fundraiser continues to be holiday photos during the zoo's Zoolights event. Guests come back year after year for their traditional photo taken with our costume reindeer and wooden sleigh.

One of our local conservation projects is participating in the Adopt a Highway Litter Patrol project. We enjoy knowing that we are making a difference in the beautification of our highway and we have an unofficial contest to see who collects the most interesting item of the day. We've even collected an extra dollar or two to put in our conservation fund!



You can keep up with our Chapter by visiting our website: [pointdefianceaazk.com](http://pointdefianceaazk.com) or find us on Facebook®.

**POINT DEFIANCE AAZK CHAPTER**





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## ***Coming Events***

Post Your Coming Events here  
email to: [shane.good@aazk.org](mailto:shane.good@aazk.org)

### **2012**

**February 6-9, 2012 - International Association of Giraffe Care Professionals** - San Francisco, CA. Located at the Hilton San Francisco Financial District. For more information, check out the IAGCP's Event Page on Facebook.

**February 15-18, 2012 - 20<sup>th</sup> Annual Conference of the International Association of Avian Trainers and Educators** - Hosted by the Minnesota Zoo, Bloomington, MN. Topics will include avian behavior, training, husbandry, conservation, education, enrichment, and show presentation/production.

**April 12-15, 2012 - Otter Keeper Workshop** - The 5<sup>th</sup> biennial workshop will be hosted by The Dallas World Aquarium. Any staff working with any of the freshwater species is welcome to attend. Topics will include: captive management issues, enrichment, training, water quality, health care, nutrition, diet, hand-raising, exhibit design, and lots of sharing of information between keepers. Registration is \$75.00. For more information, see [www.otterkeeperworkshop.org](http://www.otterkeeperworkshop.org)

**May 6-11, 2012 - ABMA Annual Conference** - Hosted by Oakland Zoo, California Academy of Sciences, and CuriOdyssey. The conference location will be the San Francisco Airport Marriott, Burlingame, CA. See the [theabma.org](http://theabma.org) for more info.

**May 13-16, 2012 - Shape of Enrichment Regional Workshop** - Hosted by Howletts and Port Lympne Wild Animal Parks, Kent, UK. For more information go to [enrichment.org](http://enrichment.org).

July 15-21, 2012  
**NATIONAL ZOO KEEPER WEEK**

**August 8-14, 2012 - The World Congress of Herpetology** - To be held in Vancouver, Canada. For more information see <http://www.worldcongressofherpetology.org/>

**August 16-19, 2012 - The 10<sup>th</sup> Annual Symposium on the Conservation and Biology of Tortoises and Freshwater Turtles** - Tucson, AZ. Hosted by the Turtle Survival Alliance and the IUCN Tortoise and Freshwater Turtle Specialist Group. For more information go to [turtlesurvival.org](http://turtlesurvival.org)

**September 9-13, 2012 - 4<sup>th</sup> International Congress on Zookeeping** - Sponsored by Wildlife Reserves Singapore/Singapore Tourism Bureau. Theme: "Many Voices, One Calling". For info on sponsorship or exhibit opportunities email [eo@aszk.org.au](mailto:eo@aszk.org.au). Check the ICZ website <http://www.iczoo.org/> for latest news/information.

**September 23-27, 2012 - AAZK National Conference** - Hosted by the Rosamond Gifford Zoo and the Rosamond Gifford Zoo AAZK Chapter in Syracuse, NY. For more information see [www.rgzaazk.org](http://www.rgzaazk.org).

#### **Upcoming AAZK National Conferences**

**2012 - Syracuse, NY - September 23-27**

**2013 - Asheboro, NC - September 22-26**

**2014 - Orlando, FL - TBD**

**For information on upcoming AAZK conferences, watch the AAZK website at [www.aazk.org](http://www.aazk.org)**

#### **Upcoming AZA National Conferences**

**September 8-13, 2012 - AZA 2012 Annual Conference** - Hosted by Phoenix Zoo, Phoenix, AZ

**September 7-12, 2013 - AZA 2013 Annual Conference** - To be hosted by the Kansas City Zoo, Kansas City, MO

For more information on AZA Conferences see [http://aza.org/ConfWork/AC\\_Intro/index.html](http://aza.org/ConfWork/AC_Intro/index.html)



## Chapter News

### *Greater New Jersey AAZK Alliance*

In June 2010, three zoological institutions in northern and central New Jersey came together with an interest in forming a new AAZK Chapter. In February 2011, the Greater New Jersey AAZK Alliance received its charter. Our Chapter consists of zoo professionals from Bergen County Zoological Park, Jenkinson's Aquarium, and Turtle Back Zoo.

Our logo was designed by Jon Wyble. Surrounding our state in the logo are three animals represented at one or more of our institutions and the honeybee, N.J.'s state insect and an important pollinator of our Garden State's crops and wild plants.

We have had a very busy first year, and held our first Bowling for Rhinos event on July 10, 2011. In addition to bowling, we also had bake sales, t-shirt sales, and silent auctions at the event, and we were able to raise \$5,881.60. We are also very proud to have raised people's awareness of the situation of rhinos in Africa and Asia, and how this AAZK fundraiser has greatly contributed to their conservation over the years. We also participated in 2011's Trees for You and Me Chapter Challenge and raised \$235 this year.

In the spring and summer of 2011, members of our Chapter helped to survey and tag horseshoe crabs (*Limulus polyphemus*) gathering at New Jersey's coastline to breed. Horseshoe crabs are very important to New Jersey's coastal ecosystem as their eggs provide vital food to nine species of shorebirds that use these areas as stopover sites on their long migrations north in the spring. This year we helped to tag over 600 horseshoe crabs! We are very excited for 2012 as we hope to expand our Chapter's activities to include the development of a Green Team as well as presenting and attending educational programs and opportunities.



~Erica Mueller

## AAZK Announces New Members

### New Professional Members

Jessica Mays, Greenville Zoo (SC)  
Bobbi Crouch, Mesker Park Zoo (IN)  
Jessica Creasy, Little Rock Zoo (AR)  
Cailyn Settlemeyer, Pueblo Zoo (CO)  
Diane Brabec, The Living Desert (CA)  
Ariane Saad, Zoo DeGranby (Canada)  
Ali Vella-Irving, Toronto Zoo (Canada)

### Renewing Contributing Members


Mark Hofling, Bronx, NY  
Caleb Rogovin, Philadelphia, PA

### Renewing Institutional Members

North Carolina Zoo, Asheboro, NC  
Ellen Trout Zoo, Lufkin, TX  
Houston Zoo, Houston, TX



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## **AAZK Seeks New Representative to the ICZ**

The American Association of Zoo Keepers is one of nine professional zoo keeper associations within the International Congress of Zookeepers (ICZ). Each of these associations has two representatives on the ICZ's Steering Committee. One of AAZK's representatives to the ICZ, Shane Good, will be stepping down from the ICZ, leaving a vacant position that needs to be filled.

AAZK seeks a qualified individual to fill this important position. The ideal candidate would have all of the skills and dedication it takes to be an AAZK Board Member, with the added ability to work within a larger Association comprised of many different associations, cultures, and philosophies. The ability to work on a very diverse team is critical. A complete job description is available upon request.

To inquire about or apply for the position, contact ICZ Coordinator Norah Farnham at [Norah.Farnham@aazk.org](mailto:Norah.Farnham@aazk.org). Applications should include a resume' and cover letter. Deadline for applications is January 13, 2012.

*Did you know? One of the benefits of being a member of AAZK is that you are automatically a member of the ICZ - for free! Check out the latest electronic newsletter of the ICZ, posted in AAZK's Members' Only section on [aazk.org](http://aazk.org).*



### **Attention All Photographers - AKF Needs Your Photos**

Attention all photographers, the AKF needs your photos as potential cover photos and special feature photos throughout the issue. All photos need to be high resolution, 300 dpi or greater. All photographers will need to submit a photo release form that can be found at [aazk.org/animal-keepers-forum/aazk-photo-model-release-form/](http://aazk.org/animal-keepers-forum/aazk-photo-model-release-form/). Photos that clearly depict facility logos and behind-the-scenes shots will need permission of the facility to be used.

Subjects for the photos should revolve around animal husbandry, conservation, education/interpretation, professional development, significant achievements in the industry (births, exhibits, staff, etc.), and can also include some of the more humorous or unique situations that we all come across each day in our occupations. Accompanying text with each photo is strongly encouraged.

### **Special Thanks to International Association of Giraffe Care Professionals**

We would like to send out a special thanks to the International Association of Giraffe Care Professionals for their continued sponsorship of the *Animal Keepers' Forum*. It is the financial contributions of our friends in the animal care and conservation industries that make it possible for us to provide our members with benefits like the AKF. Thank you International Association of Giraffe Care Professionals, and thanks to all of our Conservation Partners, Commercial Members, Institutional Members, Chapters, and you the individual members who contribute to AAZK throughout the year!



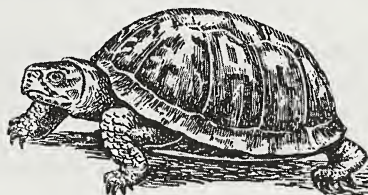


## Call for Papers For Dedicated Issue of *AKF* – CHELONIANS

We are planning in 2012 on producing an edition of *Animal Keepers' Forum* dedicated to Chelonians. We would like those interested to submit manuscripts for consideration for inclusion in this dedicated issue. Our concept for this issue would include articles both on basic Chelonian husbandry for animal care professionals with little or no experience working with this group, as well as articles relating to the most advanced techniques in captive husbandry for these species.

Possible topics might include the following:

- Chelonian Care and Management
- Chelonian Conservation
- Chelonian Field Research
- Reproduction
- Behavioral Management



Papers should be submitted electronically in MS Word only to [shane.good@aazk.org](mailto:shane.good@aazk.org). Please use Times New Roman font (10pt text body). Please put "Chelonian Issue" in the subject line of your email. Papers should be no more than 10 pages in length. Any charts and/or graphs should be submitted as separate jpg or tiff files along with (but not imbedded in) the manuscript. Photos submitted electronically should be high-resolution (minimum 300 dpi) jpg or tiff files. Be sure to include proper photo credit and a suggested caption for each photo. Please reference the complete set of *AKF* submission guidelines at <http://aazk.org/akf-submission-guidelines/>.

Be sure to also include your complete contact information including name, address, email and a daytime phone where you may be reached if we have questions concerning your submission. Also be sure to include your facility and your job title at that facility.

Deadline for submission of articles for this special Chelonian Issue is **February 1, 2012**.

### **Attention Gorilla Groupies!**

The International Gorilla Workshop will commence 11-15 June 2012 at Apenheul/Gaiapark in The Netherlands. For more information, go to [www.igw2012.org](http://www.igw2012.org).

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# *Final Thoughts as I Retire...*

It is not often in a lifetime that one has the opportunity to combine one's training and one's passion into a career. I have been so fortunate over the past 30+ years to be able to do just that.

After graduating with a degree in journalism I worked as a reporter on a daily newspaper, as the editor for a weekly newspaper and as the editor for employee publications at a large printing company. While these jobs fulfilled my need to utilize my love of writing as well as my training, these positions certainly didn't involve exotic animals in any way.

After I had children and became a stay-at-home mom I had the opportunity to become involved at the Topeka Zoo in their Education Dept. as a Docent and editor of the docent program newsletter, "*Cowabunga News*". At that time the AAZK National Office was located at the National Zoo in Washington, DC. The AKF Office, however, was where it had always been - in a former night keeper's apartment above the commissary building at the Topeka Zoo.

AKF had actually started as a renegade publication entitled "*The Ruptured Rhino*" - that was begun by a group of Topeka Zoo Keepers as a bit of a protest to the direction the Association was taking in its early days. Eventually it morphed into the early AKF, printed on a mimeograph machine, and was adopted by AAZK as its official publication. In 1981, I was approached by Ron Kaufman, one of the original founders of AKF, about taking on the position of editor. At that time the AKF had grown to a 16-page publication and, as some of you may have heard me say before, was put together using an IBM-Selectric® typewriter with no correction key and glue sticks.

Over the past 30 years, the *Forum* has come a long way from its humble beginnings. While its style and format have changed with the advent of computers and desktop publishing capabilities, the original intent and mission of AKF has not changed. That mission is to provide keepers with information and resources to help them be better at their jobs and be able to provide excellence in captive, exotic animal care.

So many people have played a part in AKF's evolution over the years that it would be impossible to name them all without surely missing someone. But I do wish to send out my personal thanks and gratitude to the members of the various Boards of Directors under whom I have worked as well as to the countless zoo professionals who have authored manuscripts covering topics ranging from husbandry to hand-rearing, environmental enrichment to operant conditioning, veterinary techniques to conservation efforts worldwide. You are all indeed an amazing group of professionals who are willing to share your information - your successes as well as your failures - all with the goal of helping zoo keepers everywhere become more proficient at their jobs.

One of the things that made AKF unique among the world's zoological publications is the original artwork that has graced most of the covers during its nearly 38-year history. My thanks to those individuals - keepers and zoo volunteers - who expanded their passion for animals beyond the written word to the beautiful, artistic renderings you have seen each month.

To all those individuals who have served as coordinators for our regular columns - Enrichment Options, Training Tales, Conservation Station, Reactions, The Water Column and People Skills for Animal People among others over the years - my thanks for your commitment to facilitating the dissemination of information each month in AKF and sticking to the necessity of the AKF deadline schedule.

To all those individuals who helped with the production of some of our special publications - *Diet Notebook for Selected Mammals*, the *Zoo Infant Development Notebook*, the *Zoonotic Diseases Handbook*, the *Resources for Crisis Management Book*, and the *AAZK 25th Anniversary History*, my thanks for your assistance, support and professionalism.



To those zoo professionals who assisted in the production of the various dedicated issues of *AKF* covering Cheetah, Bats, Polar Bear, Geriatric Zoo Animals, Avian Husbandry, Crisis Management, Climate Change and the most recent July/August 2011 issue on Ungulate Husbandry, Enrichment, Training and Conservation – my sincere thanks.

I will break my rule about not mentioning specific individuals only in one instance - that is to express my gratitude to and admiration for Barbara Manspeaker, AAZK Administrative Secretary, with whom I have worked since 1984. Her friendship, encouragement and support both professionally and personally have been very important to me. I could not have asked for a better co-worker or a better friend.

While I do look forward to retirement and the opportunity to spend more time with Gary, my husband of 44 years, I will miss this job. It has been a job I have loved. It has been a job in which I have found myself learning something new nearly every day. It has been a professionally fulfilling job. It has given me the opportunity to develop a vast network of colleagues from around the globe. The people I have met along the way and, many of whom I have had the privilege of working directly with, have enriched my life beyond measure.

It has been a pleasure to watch both AAZK and *AKF* evolve and grow through the years. I have always thought of AAZK as the “little engine that could” - despite limited financial resources for much of its existence, this Association has been gifted with the staunch support and indefatigable efforts of many people with a shared passion for animals and our environment. Working with such a group of dedicated individuals has been a privilege.

As I turn the editorship of *Animal Keepers' Forum* over to the capable hands of Shane Good, I wish him every success as the journal continues to grow and expand to serve the needs of the AAZK membership. I hope you will continue to give Shane the kind of support you have always given to me. The journal is your to share your ideas, knowledge, and experience with the ultimate goal of helping all zookeepers, trainers and aquarists provide the best in professional animal care. Be a part of it.

Thanks for the friendships and the memories.



Susan D. Chan  
Managing Editor *AKF* 1981 - 2011



## From the Editor

### Lions, Tigers and Bears...Oh, my Ohio.

On October 19, near Zanesville, OH schools closed, motorists were warned to stay in their vehicles, and officers armed with rifles searched for the all too real lions, tigers and bears of our childhood memories as they roamed free across the rolling hills near a private wild animal preserve in south-eastern Ohio. These animals were purposely set free by their owner, who then killed himself. Many are calling this the largest exotic animal escape to ever occur in the United States. The tally is staggering as 49 animals were put down including 18 Bengal tigers (*Panthera tigris tigris*), 17 lions (*Panthera leo*), six black bears (*Ursus americanus*), two grizzlies (*Ursus arctos horribilis*), three mountain lions (*Puma concolor*), two wolves, and one baboon, according to *ABC News*. Six animals, including three leopards (*Panthera pardus*), two Celebes macaques (*Macaca nigra*), and a young grizzly bear were eventually rescued and taken to the Columbus Zoo.

Not long before the Zanesville tragedy, the award-winning documentary film "*The Elephant in the Living Room*" was released, highlighting the counter-culture of people who privately keep exotic pets. The film featured officer Timothy Harrison of Oakwood, OH who has become an expert in dealing with the dangerous exotics that people have purchased as cute babies, and then grow into dangerous adults for which they can no longer provide care. The film shows just how easy it is to purchase an exotic animal in my beloved home state of Ohio. They go undercover at the notorious Mt. Hope Auction, cross the border for a Pennsylvania reptile show and cruise the aisles for venomous snakes, and leaf through "*Animal Finders Guide*", somewhat of a Craigslist® for exotic animals.

According to the film, 30 states allow private ownership of exotic animals, and nine require no permit whatsoever. To put this in perspective, in Ohio I'm required to register my dog and purchase dog tags for her, but if I were to own a lion or a tiger, I'm not required to do anything. To quote Ohio Governor John Kasich, "We don't have a clue in the state of how many (wild) animals there are; we have no inventory". But we do have some estimates from the film "*The Elephant in the Living Room*". It is estimated there are 15,000 exotic cats in private ownership in the U.S., 7.3 million reptiles, 15,000 primates, and more tigers in private ownership in Texas than there are in the wild in India. Think about those numbers Studbook Keepers! In addition to private ownership, the International Primate Protection League reported in September 2011 that 21,315 primates were imported into the U.S. in 2010. The primates were primarily imported from China (62%) by research labs. The species most commonly imported was the crab-eating macaque (*Macaca fascicularis*).

This topic hits home for me because both stories, the Zanesville tragedy and the film, are set in my home state of Ohio. I'm familiar with how easy it is to purchase exotics in Ohio because a retired co-worker of mine would go to many of the auctions, write down the prices of what the animals would go for, and bring the lists for me to see. It is amazing to see what one can purchase and how cheaply. Purchasing a lion cub is as simple as going to an electronics store and buying a television. It also hits home for me because I had a relative who worked as an officer in southern Ohio in a similar capacity as Timothy Harrison in the film "*The Elephant in the Living Room*". I would hear the heart-breaking stories of how many of those exotic animals are kept in the hands of private owners. Now I know there are some people that will argue that there are plenty of private owners who do great work, and I am not disputing that, but nobody can deny that there are a tremendous amount of exotic animals in horrible circumstances.

Which brings me to the main point of my editorial: What should be the role of accredited zoos and aquariums when it comes to the issue of the private ownership of exotic animals? This is a call to action that must not go unheeded. If you stay in this industry long enough, you see things repeat



themselves. Many years ago, a major magazine did an expose' on the trade of exotic animals. Like today, it was a call to action, but our industry remained silent. We have a second chance to assume a leadership position on an important issue. If we are the premier experts on the care of exotic animals, then shouldn't our industry be at the forefront of addressing this issue? Some zoos and associations have stepped up to the plate on this issue, while others have remained silent. As the subject-matter experts, our industry must show leadership in helping establish the proper expertise, permits, resources, facilities, and safety precautions it will require to privately keep exotic animals in the future.

Back in Ohio, the Columbus Zoo is part of an 11-member task force addressing the issue of exotic animals. The task force includes the Columbus Zoo, the U.S. Department of Agriculture, Humane Society of the United States, Knox County Prosecutor's Office, Ohio Association of Animal Owners, Ohio Farm Bureau, Ohio Veterinary Medical Association, U.S. Sportsmen's Alliance, and the Zoo Association of America. The state imposed a temporary moratorium on the sale of wild animals and any unlicensed animal auctions have been closed. It's all a step in the right direction. As animal care professionals, it is our duty to educate our visitors and communities about the animals in our collections, but also the animals in their collections as well, which can sometimes be even more exotic and extensive than the ones at the zoo. Ultimately, our role as animal care professionals should impact animal welfare, conservation, and community relations, within and beyond the perimeters of our zoological institutions. That is where we can truly "foster the wonder" as AAZK President Bob Cisneros eloquently puts it in this month's *Letter from the President*.

What do you think? Send us your thoughts on this important topic.

Contact the Editor at [shane.good@aazk.org](mailto:shane.good@aazk.org)

### **Special Interview on the Topic of Private Ownership of Exotic Animals**

The following interview is with Dr. Chris Kuhar, Curator of Primates and Small Mammals at Cleveland Metroparks Zoo. Dr. Kuhar served on a panel discussion at a local Cleveland college on the private ownership of exotic animals and is an active participant on the issue, both locally and throughout the state. I recently had the opportunity to discuss with him the many facets of private ownership of exotic animals.

*AKF: What is your role in addressing private ownership of exotic animals in Ohio? Why are you passionate about this issue?*

Kuhar: As Curator of Primates and Small Mammals, I receive a call every couple of months from a private owner who wants to get a pet primate. They may want anything from tamarins to chimpanzees, or worse, they already have the animal and are discovering the potential problems. The animals that end up as pets are usually hand-reared so they typically have behavior problems. Additionally, the owners can't find good medical care or diet information. Often the pet primate that was so sweet is now becoming aggressive as it reaches sexual maturity. It's a predictable story and it's all very bad for the primate. On top of all this, they are typically a social primate being housed alone. All of these factors create a very bad welfare situation for that animal. I'd really like to see this prevented. That's why I've taken an interest in this issue in Ohio.

Cleveland Metroparks Zoo has been vocal about the need to deal with this situation in Ohio. The fact that exotic animals often do not make good pets is an important education message that we try to convey.

*AKF: Why is the issue of private ownership of exotic animals important to animal care professionals?*

Kuhar: In my opinion, there are two major reasons. The first is that animal care professionals

are focused on providing the best care possible for animals and ensuring their welfare. There are many animals out there that are just not receiving the care that they need. It is important for us to acknowledge that fact and communicate to the community outside of the zoo about our desires for a higher standard of care for these animals. Additionally, as animals are confiscated out of bad situations, they may end up in our zoos. We need to be prepared for that possibility.

Second, I think the average person who sees stories like the tragedy in Zanesville does not differentiate between accredited zoos and unaccredited zoos, sanctuaries and private menageries. As a result, for every bad exotic animal story, whether it's a major news story or individuals becoming aware of poor animal care in their community, it can reflect poorly on accredited zoos and aquariums.

*AKF: Explain what Ohio zoos are doing in regards to this issue their state.*

Kuhar: The Columbus Zoo has obviously taken action by housing some of the animals from the Zanesville tragedy, but zoo directors from all of the AZA-accredited facilities in Ohio have issued statements to the state government asking for legislation to be created that would regulate exotic animals in the state. Many of the zoos also have education message points around why exotic animals do not make good pets. Until legislation is put into place, the zoos' role is primarily one of education and advocacy.

*AKF: What is AZA's stance on this issue?*

Kuhar: AZA has issued a statement reiterating the position that exotic animals do not make good pets. They have also stated that they urge Ohio to adopt some of the exotic animal regulations that other states have adopted.

*AKF: Does the Zoo and Aquarium industry seem united on its stance on this issue, or are there any differing opinions?*

Kuhar: There are some taxonomic differences. Some private breeders of reptiles, amphibians, birds, and fish are very successful and very professional. These individuals are important to the zoo and aquarium industry since they can provide much needed space and expertise that allows us to manage sustainable collections and not impact wild populations. The challenge lies in where to draw the line. How do we define "professional" and "expert"? Which species are OK to have and which species aren't? Many states have different regulations because these questions are so hard to answer.

*AKF: Common questions I hear pertain to accredited zoos' relationships with exotic animal auctions. "Aren't these auctions supported by zoos?" "Don't zoos themselves obtain animals from these auctions?" "Don't zoos dump surplus animals on these private facilities?" "How can you be sure that zoos aren't contributing to the problem?" First of all, how do you respond to such questions?*

Kuhar: AZA's code of ethics directly states that members must follow disposition standards that do not permit the animals under our care to end up in situations where they may end up in the hands of individuals who are not qualified to care for them properly. Each zoo's disposition policy is slightly different because of their individual situations, but the common thread running through AZA-accredited institutions is the ethical code which requires us to keep these animals' best interest in mind. That may not have been the case in zoos of 100 years ago, but it's what we try to do today.

*AKF: The questions above point to a perception problem. Whether accredited zoos and aquariums have a relationship or not, when something bad happens, it seems the public inevitably still relates accredited facilities with "roadside zoos". In other words, even the best facilities' reputations are affected by problems in the worst facilities. Are we being proactive enough in addressing exotic animal issues in private ownership and roadside zoos?*



Kuhar: I think that's a great point. We may make a distinction between "us" and "them", but that's not necessarily the way the public sees it. That's why accreditation standards are so important and it's why it's important for us to stand up and voice our concerns. We need to tell people why we're different and what we're doing to be different. This way, we not only tell people how hard we work to take care of the animals that are entrusted to us, but we can show people that this is an issue that shouldn't be taken lightly.

*AKF: Should private ownership of dangerous, exotic animals be banned? If not, where do we draw the lines?*

Kuhar: It is my opinion that dangerous, exotic animals should be banned. The hard part is defining what a dangerous animal really is. It's easy to say that lions, tigers, bears, or chimpanzees are dangerous, but what about a baboon or a clouded leopard? They aren't as dangerous as the others, but they could certainly do a lot of damage to you in the wrong situation. It becomes a very hard decision.

*AKF: As a Curator of Primates, would you draw a line there? Would you like to see no primates being sold into private ownership?*

Kuhar: I would prefer that no primates were in private hands. There are definite physical dangers for some of the bigger animals and there are definite zoonotic disease issues with others, like macaques for example. However, there are serious welfare implications for all primates in private hands. It is very challenging for private owners to provide adequate veterinary care and the correct social environment for these animals. When those standards of care aren't met, the welfare of these animals suffers. I'm just not able to justify making it legal for those very few individuals who may be able to meet the standards required for keeping primates while hundreds or thousands of others are kept in inappropriate housing situations. It would be better for animal welfare and human safety if it were illegal for primates to be privately owned.

*AKF: One of the statistics from the movie "The Elephant in the Living Room" is that there are more tigers living in captivity in Texas than there are in the wild in India. How does the trade and ownership of exotic animals affect the conservation of species?*

Kuhar: As long as there is a demand for exotic animals and a profit to be made there will continue to be pressure on wild populations. If individuals feel they can profit, there will always be the temptation to bring in animals from the wild and cheat the system. Even well-intentioned individuals can cause harm if they aren't sure exactly who they are dealing with and with whom that individual has dealt. Perhaps more disturbing is the fact that there is growing evidence from research with primates that the presence of primates in the media detracts from the public's perception that these species are endangered. Just seeing them in close contact with humans in commercials and in movies makes people take their conservation issues less seriously. We still don't know if this applies to all species or what the specific factors that impact people's perceptions are, but if the prevalence of exotic animals in private hands, and used in the media has the same impact, this would greatly compromise the goals of the modern zoo to educate and promote positive conservation impact.

*AKF: If you could convince animal care professionals and their professional associations to do anything in regards to this issue, what would it be?*

Kuhar: This is a complicated issue. Animal care professionals need to be aware of how their actions are impacting the bigger picture issue. Educate yourself about the wildlife laws in your community and advocate for more stringent laws when necessary. Educate the public, your family and friends, anyone who will listen about what zoos are doing to help wildlife and the importance of leaving the care of exotic animals to trained professional staff.

# The AAZK Behavioral Husbandry Committee Presents

## Training Tales...



Where you can share your training experiences!

*Training Tales Editors – Jay Pratte, Omaha’s Henry Doorly Zoo;  
Kim Kezer, Zoo New England; and Angela Binney, Disney’s Animal Kingdom*

### **Getting Over the Hump: Using Operant Conditioning to Train 0.2 Juvenile Camels**

*By*

***Allyson Corea, Swing Keeper  
Natural Bridge Zoo, Natural Bridge, Virginia***

#### **Introduction**

In the spring of 2010, the staff at the Natural Bridge Zoo began experiencing behavioral problems with two of our dromedary camels (*Camelus dromedarius*). Juvenile camels, Isabel and Carrie were born in the late fall of 2009. Unfortunately, due to the heavy snows that winter, the camels did not have many opportunities to leave their stall. It wasn’t until the end of April that the weather was warm enough to start keeping the camels outside during the day. We needed to use halters and leads to walk them from the stalls to the petting area, but this proved to be very difficult since the camels had not experienced walking on leads and halters before. Isabel and Carrie would have “tantrums” which often included lots of screaming, kicking and jumping, pulling on the lead, running ahead, and sometimes simply refusing to move. We also needed to address an issue that occurred during feeding time. The camels would rush to the gate upon seeing the arrival of grain, would refuse to back up, and even attempt to eat the grain straight from the bucket. This lack of respect of the zookeeper’s space was a potentially dangerous situation that needed to be resolved. To solve these problems, another zookeeper and I were permitted to implement a training program for walking the camels using operant conditioning. Most of my previous training experience was in canine obedience. This was my first time working with camels, so this was going to be an exciting learning experience for all of us.

#### **Preparation**

To develop a training plan, we first had to determine appropriate sources of positive reinforcement. Although, bottles were advantageous as motivators, it was not an efficient training reward. Another fact to consider was that the juvenile camels were not used to chewing pieces of fruit. We found that it was difficult for them to grab onto a large chunk of apple or pear. The size of the treat had to be taken into account. If the treat was too large, the amount of time taken to chew it detracted from the training and there was the possibility of the camel’s attention wandering. Grapes were another favored treat, but were too slippery and easily dropped. Finally, we discovered that watermelon cut into small cubes was a quick and healthy treat. Watermelon cubes were easy for camel lips to grab onto, and small enough to prevent the focus of the camels from wandering. We decided to use watermelon cubes as a primary reinforcer, and praise as a conditioned reinforcer. Isabel, in particular, enjoyed grooming sessions, so we used that to our advantage. Brushing the camels every morning also helped to build trust between the camels and the keepers. Such tactile reinforcement was beneficial should we ever need to inspect feet or legs.





Receiving a watermelon treat

*Photo by Megan Sangster*

Knowing that consistency is so important, training was to occur every time the camels needed to be walked outside to the petting area, depending on the weather. We also planned for several short training sessions throughout the day. Our two major goals of the training program were to desensitize the camels to the halters and walk the camels calmly without problems. The problems we needed to address during walks were: tantrums, becoming distracted/eating grass, refusing to move, running ahead of the trainer, and crowding the trainer's space.

## Training

The first step in our training program was to desensitize Isabel and Carrie to the leads and halters. Initially, both camels would run away or throw a tantrum upon seeing the halters. We realized in this case, the bottle was the best way to get the camels' focus. During the first few attempts, the camels were haltered as the bottles were given. We incorporated haltering during each bottle time; therefore, it only took a few times for the camels to begin associating the halters with bottles. After re-assessing our strategy, we changed our tactics to haltering first, followed by rewarding good behavior with a bottle. We did this because we wanted to be able to halter a camel at any time, whether or not a bottle was presented.

Occasionally, Isabel or Carrie would get upset while being haltered, and struggle. In these instances, we would wait for the camel to calm down, and proceed with the behavior. The camel would receive the bottle only after a calm haltering. Tactile reinforcement and praise were also used to encourage a stress-free haltering.

Once a camel was successfully haltered, two handlers were required. The primary trainer held the lead rope and treats while an assistant stood towards the back and off to one side, with a staff ready to give a prod in the rump if necessary.

During visiting hours, we used an unoccupied enclosure for training sessions. The circular path in the enclosure was easy for the camels to follow while on the lead. Therefore, to ensure that Isabel and Carrie were following our lead and not just the path, we changed the route as often as possible. We included counter-clockwise routes, figure-eights, half-circles, etc.



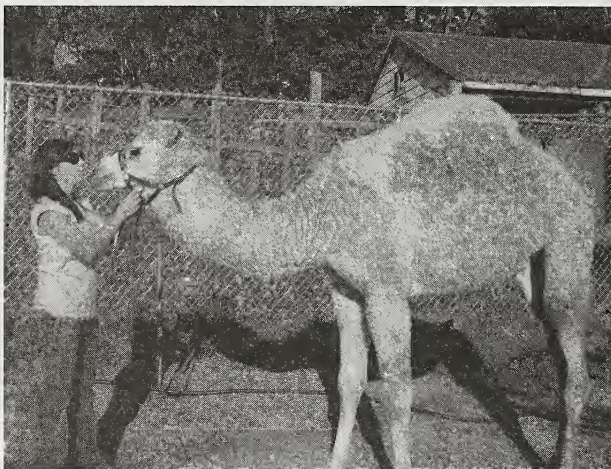
Haltering Isabel

*Photo by Megan Sangster*



It was important to keep training sessions brief, ensuring they always ended on a positive note. As the camels showed progress, session lengths gradually increased.

We learned how to anticipate a tantrum, and prevent it from happening. If a camel began showing signs that she was about to jump-kick, a quick downward jerk of the lead with a simultaneous and firm “No” was applied, similar to canine obedience. The key was to watch the camel’s behavior and posture. A sudden quickening in pace, the camel’s nose in the air and a stiff, outstretched neck were clear indicators of an impending tantrum. When displaying a calm demeanor, the camel was rewarded with a treat. As training progressed, the watermelon was used as a variable reinforcer, and gradually phased out and replaced with praise alone. In order to eliminate overcrowding or walking ahead of the trainer, we introduced two commands: “stop” and “back up.” After the verbal cue “stop” followed by a hard downward tug of the lead, the trainer stopped the camel from walking further by moving directly in front of the camel and facing it.



**Stop command**  
*Photo by Emily Thornton*

Keep in mind that these are juvenile camels, no older than six months, therefore, strong but still able to be controlled. I would not recommend stepping in front of a full grown camel in the throws of a tantrum. Once we had given the command to stop, the camel was given positive reinforcement as long as it calmly remained in that position. We then gave the command “back up” followed with a gentle prod to the chest. The camel would back up and receive a reward. The pressure of tugs and prods increased if the camel refused to perform the desired behavior. Even more important, was the timing. The message would be unclear if the tug or prod was applied at the wrong time. Eventually, tugs and prods were phased out, and used only when a behavior was not performed.



**Back up command**  
*Photo by Emily Thornton*

## Conclusion

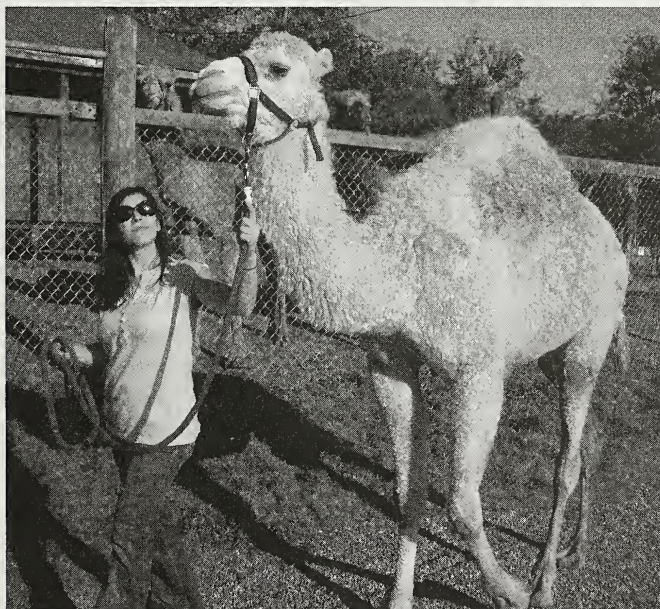
There were a number of obstacles to overcome throughout the camel training. These included coordination of the keeper schedules, weather restrictions, and regular zoo maintenance as a major distraction. Unfortunately, there were days that were so busy, that we were unable to spend the appropriate amount of time implementing the training plan. However, the camels still needed to be walked from the stall to the petting area before open hours. On those days, it was still imperative to



use commands as necessary, and end the walk with a jackpot reward, such as sweet feed or a bottle. Issues like that resulted in inconsistent training schedules and sometimes regression of learned behaviors. Fortunately, after one month of training, both camels and handlers were comfortable enough for only one handler at a time. By July, we had successfully trained the camels to walk on a lead and halter without running ahead, and to back up on command. It took slightly longer to master the “stop” behavior while maintaining the camel’s attention. I attribute our success to having multiple, short training sessions, being consistent, and always ending on a positive note. One of the most important lessons I learned while training Isabel and Carrie was to be patient and consistent. Camels are sensitive, and do not easily forget about a recent tantrum. If I began to get frustrated, the camel would sense that and start to act up. Training sessions were positive and fun for the camels as long as I kept everything at a slow pace, and did not rush into haltering or walking. A keeper training log was maintained to keep track of our progress. This was especially useful in relaying information between keepers with conflicting schedules. Since then, we have had the opportunity to raise two more baby camels in July and September of 2010. With new baby camels comes new challenges, but with the advantage of beginning training early, we have been able to successfully continue the training methods that had been developed for Isabel and Carrie.

**BHC Comments by Kim Kezer & Angela Binney:**

This training team took somewhat of a holistic approach, considering the animals’ history, diet, environment and individual behavior. By combining past experiences with successive approximation and traditional horse/camelid training methods, these camel keepers were able to reach and even exceed their goal. Constant evaluation of the animal’s behavior was evident in how trainers were able to anticipate undesired behavior using careful observation of the camel’s posture and quickly discourage this behavior by redirecting. Adjustments were made to aid in the success of each session which ultimately helped them to reach their training goals. Evaluating progress and making small adjustments along the way ensured success in learning and better prepared the trainers for training the next set of juvenile camels. Thank you, Allyson, for sharing your training tale!



Walking Isabel  
*Photo by Emily Thornton*

# Supplemental-raising of a Guereza Colobus (*Colobus guereza*) Infant

By

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## Abstract

A colobus named Zoe lost multiple infants during, or shortly after, birth before finally giving birth to a surviving infant in November 2009. Zoe's maternal care was initially inadequate and the infant may also have had some other underlying issues. However, with intense supplemental care the infant was able to remain with Zoe and the social group. She was undersized until about a year of age, but now appears to be a normal colobus.

## Introduction

Mesker Park Zoo (MPZ) in Evansville, IN has exhibited Guereza colobus (*Colobus guereza*) since 1975. Their current housing is an outdoor exhibit [33ft. (10m) Length x 20.5ft. (6.25m) Width x 17ft. (5.2m) Height] connected by a raised chute [42.75ft. (13m) L x 3ft. (0.9m) W x 2ft. (0.6m) H] to three indoor, off-exhibit holding stalls [each 8ft. (2.4m) L x 6ft. (1.8m) W x 8ft. (2.4m) H]. When I started working with the colobus in June 2008, the group consisted of 1.0 Michael (born 24 Dec 1990) and 0.1 Rafiki (born 2 Apr 1989). Michael and Rafiki both had successful reproductive backgrounds at MPZ. Due to a Species Survival Plan (SSP®) recommendation, a second female named Zoe came to MPZ in July 2008.

## Zoe's History, Gestation, and Parturition

Zoe (born 7 Feb 1994) did not have a normal upbringing. She was born at the Houston Zoo to an experienced mother. However, at a young age Zoe went through an apparent depression (thought to be caused by the death of a group member) that included anorexia.<sup>1</sup> Although she was able to remain with her mother and is classified as parent-reared by Taxon and Specimen reports, staff had to provide intensive supplemental care. As a lasting result, Zoe has an unusually close relationship with people. She solicits grooming from caretakers even when con-specifics are nearby.

Zoe was moved to the Oregon Zoo in October 2005 per an SSP® breeding recommendation. While there she had the chance to watch another experienced female raise offspring. Zoe had some difficulty fitting into the group, which consisted of 3.1 colobus (adult male, adult female, and their two juvenile male offspring). It is possible that the stress of the situation contributed to her first stillbirth on 31 January 2007. Her medARKS record mentions the infant had internal hemorrhages suggestive of dystocia. The infant may have succumbed to a hypoxic death since the placenta detached and was delivered intact with the infant. Following the stillbirth, Zoe showed a renewed interest in the other female's infant (born December 2006) and spent time holding and interacting with her. After Zoe's second pregnancy was confirmed, the two juvenile males were moved to a separate on-site holding facility. Zoe had a second stillborn infant on 12 September 2007. Once again the medARKS record reports an intact placenta. It also mentions the infant's low birthweight, 372 grams [13.12oz.] compared to more normal birth weights of around 600 grams [21.16oz.]. The infant also had a congenital anomaly. A third birth occurred on 29 March 2008. This infant lived less than a day with the cause of death determined to be a traumatic cerebral hemorrhage. Even though keepers had prepared for this birth by heavily bedding the holding area, Zoe's inadequate holding of the infant probably caused the trauma. After this last birth, Zoe was kept separate from the male until her transfer to MPZ.

Zoe's integration into the colobus group at MPZ in August 2008 went smoothly. She exhibited appropriate behavioral responses to both Michael and Rafiki and within a few weeks it became evident that she had become the dominant female. Based on weight gain, pregnancy was first suspected in



late October 2008. By December she was showing a rounded belly and some mammary enlargement. To prepare for the birth, the shelves and limbs were lowered to less than two feet off the ground in early January. Shortly thereafter Zoe was separated from the other two individuals overnight in a bedded stall. Anecdotally, Rafiki was said to be a “baby stealer” - behavior excessively beyond the normal colobus allo-mothering behavior<sup>ii</sup>, and though she was a good mother, her milk production was non-existent. We thought separating Zoe initially would give us a chance to better monitor her maternal skills and avoid potential trauma caused by having to take a baby back from Rafiki who was a skittish individual.

On 21 February 2009, a deceased infant was found in the straw. It was cold to the touch with an intact umbilical cord and placenta. Zoe was calmly sitting on the shelf above it. Unfortunately, the necropsy cooler malfunctioned and the body was frozen. A subsequent lung float test made the vet believe the baby had been stillborn. However, the pathologist who later examined tissue samples believed that the baby had been born alive.

Zoe remained separated from Michael until 5 April 2009. The reintroduction was uneventful. In early June, some bleeding was seen. This discharge was attributed to cycling even though black-and-white colobus are not known to have visible reproductive signals<sup>iii</sup>. Based on this suspected cycling, mid-December was thought to be when the baby was due. At the end of her last pregnancy, I was able to feel fetal movement during a grooming session. With another possible pregnancy, I decided to use this component as an opportunity to monitor fetal health. Fetal movement was first suspected on 29 Aug 2009, however it seemed too soon to be feeling anything. An ultrasound was performed on 3 September 2009 and pregnancy was confirmed.

After pregnancy was confirmed, I tried to feel the baby moving at least twice a week. Mammary duct development was reported on 14 September 2009. Overnight separation began 8 November 2009. This time I asked to have Rafiki separated with Zoe, believing that Zoe’s main issue was care for the baby immediately following partruition. However, still believing that Zoe wasn’t due until mid-December, the holding limbs were not yet lowered and I, the primary keeper, left for vacation in California.

On 13 November 2009, Zoe gave birth to a live female infant. When keepers performed AM checks, Rafiki was holding the baby. By the time management and veterinary staff formulated a plan for retrieval of the baby, Zoe had retrieved her. However, when she was approached, Zoe dropped the baby from approximately five feet onto the concrete floor. The baby was pulled for a health check. Zoe was also sedated for a health check and clear fluid was expressed from her nipples. Because of Zoe’s inadequacy and a continued worry for latent neurological issues related to being dropped, the baby, named Garnet, was initially hand-reared with the goal of returning her to Zoe as soon as possible. I returned early from my trip on 17 November 2009.



Garnet at six days old.  
*Photo by Jessica Franck*

## Garnet's Challenges

We did a visual introduction with Zoe and Garnet to gauge Zoe's interest on the afternoon of 18 November. She was very interested and frantically tried to make contact with her infant. The decision was made to physically reintroduce the infant the following morning. The holding stall was prepped by lowering limbs/shelves to less than 18 inches off the ground and heavily bedding it with straw. The baby was weighed, fed, and measured at 0800hrs and then placed in the stall on her surrogate (a heated bag of fluids covered with furry fabric). Zoe, in her inexperience, focused on the surrogate and not the baby. When Garnet fell off at 1045hrs, she was retrieved and Zoe was pressured to drop the surrogate and then Garnet was returned to her. Zoe held the baby inappropriately, low or upside down at times. When jumping onto limbs she tried to hold the baby with her mouth, a carrying form seen only in olive colobus (*Procolobus verus*)<sup>iv</sup>. Staff did not observe any nursing and the decision was made to pull the baby at 1430hrs. Zoe and the baby were put in a squeeze cage where Zoe was given a sedative and then Garnet was pulled from her. Reintroduction was performed again over the next two days with the same results. On 22 November, Rafiki was added to the mix, but Zoe would not let her hold Garnet. I was able to express clear fluid from Zoe's nipples in the squeeze cage that afternoon and I unsuccessfully attempted to position the baby close to the nipples. Zoe was amazingly tolerant of this interference.

The decision was made to anesthetize Zoe on 23 November. We were able to express milk from both nipples and managed to get Garnet to latch on and nurse. At one point, she let go of the nipple and then found it again on her own. We also shaved the area around the areolas to give observers a better visual of nipple location and any nursing. We decided to not pull Garnet that evening. When Zoe was still recovering and being physically supported, the baby nursed from the opposite nipple without much assistance. After Zoe fully awoke, no additional nursing was observed. Garnet would cry and Zoe would appear distressed. Nursing was finally observed again at 1735hrs. No nursing was seen when checked at 2200hrs, but nursing was seen at 0300hrs and throughout the following two days.

On Thanksgiving Day, 26 November, Rafiki was put back with the pair. There still appeared to be nursing, but at 1200hrs Garnet appeared to be leaning backward from Zoe. Rafiki had Garnet at 1505hrs, but when Zoe approached she gently let her take the baby back. Something was obviously wrong with the baby at this point. She was leaning backward and wasn't holding on well. Her color was pale. The decision was made to pull Garnet again. When her condition was assessed, her weight was found to be down over 150 grams [5.29oz.].

Thus began a nightmarish cycle of regurgitation, multiple daily administrations of subcutaneous fluids, and an episode where Garnet's blood sugar dropped so low she began seizing. She was a different animal. Her motor skill development had regressed. She cried constantly to the point that her voice was hoarse. It took her 10 days to recover to the point that we felt comfortable putting her back with Zoe again during the day.

At this point, it seemed clear that something was improper with the nursing. Several problems could include that Garnet was not getting the volume needed or Zoe's milk was somehow nutritionally lacking or Garnet wasn't processing the milk properly. We decided to work on supplemental feeding Garnet while she was with Zoe. We had limited success in getting access to Garnet when she was with Zoe in the holding stall. We next tried using our existing squeeze cage, but the bar space was too narrow for the bottle. Our maintenance department built a creep cage to our specifications [24in. (61cm) Length x 12in. (30.5cm) Width x 28in. (71cm) Height]. It matched up with our shift doors and was narrow enough to allow us access to the baby with bar spaces [3.25in. (8.3cm)] that the baby could fit through, but an adult colobus could not. We started using this device on 10 December. Again, Zoe is an amazingly tolerant animal and without her cooperation this interaction would not have been possible. Garnet was cooperative as well. She bonded with Zoe very quickly and looked to her for reassurance and comfort. Garnet also recognized keepers as food providers. She would try to get to us at feeding times, even if Zoe's preference was for her to stay closer.





Feeding Garnet in the creep cage.

*Photo by Jessica Franck*

interested in her gall bladder and liver because of her vomiting issues. However, everything appeared normal on ultrasound.

When Garnet was away from Zoe, care was 24/7. She was fed when hungry, which averaged every few hours. When Garnet was with Zoe, the initial schedule was five to six feedings a day beginning at 0700hrs and ending at 2200hrs. Around the same time that we started using the creep cage, we began introducing solids into Garnet's diet because we weren't getting the formula consumption and weight gains we wanted despite trying multiple nipples, methods of delivery, formulas, and concentrations. We soaked Mazuri® leafeater biscuits in formula, cooked sweet potatoes, offered bits of banana, and tried various flavors of baby food. We discontinued the late night feedings on 2 January because Garnet wasn't eating much and it fit in with our eventual plan of self-sufficiency. An evening feeding was added back on 15 January because of a schedule change that eliminated the second keeper shift.

Another challenge that contributed to the perception of Zoe's maternal care as lacking was the condition of Garnet's hair. She was covered in urine and started suffering significant hair loss on her tail and wounds to that area as well as her vulva. To combat this problem, we replaced any solid shelving with slotted ones and continued to bed the stall with straw. We would also bathe Garnet periodically and apply Nolvasan® to her wounds. Our veterinarian implemented a strict handling protocol at this time that included gloves, facemask, and a Tyvek® suit. Garnet also had issues with cleanliness related to the baby food we were feeding her. Despite our best efforts, it would clump on her and Zoe. We were able to remove the clumps during baths, but it took until the warmer months for me to cut the clumps off of Zoe's abdomen during our resumed grooming sessions. Garnet's tail hair did eventually regrow.

Garnet had another relapse in early January. It wasn't as extreme as her Thanksgiving one, however, and she was able to remain with Zoe. She was put on antibiotics and started back on subcutaneous fluids. The fluids were administered once a day via a butterfly catheter while Zoe was holding her and continued until 17 January. She was still experiencing periodic regurgitation at this time, which we treated with oral and intramuscular Metoclopramide. In February, experts with the University of Southern Indiana Diagnostic Medical Sonography team came out to examine Garnet. We were particularly



Garnet with baby food clumping on her hair

*Photo by Jessica Franck*



There were lots of small things that may have contributed to Garnet's eventual success. She was given Bene-Bac™ supplement to help establish a gut flora and also some of Zoe's fecal matter (after checking for parasites). At various times our veterinarian had her on infant gas relief drops (Simethicone), oral calcium and also prescribed time under a UV light. We also tried Nutri-Cal® when her formula consumption went down.

By 15 January, Garnet had declared her preference for solids. The amount of time each feeding took increased to an average 30 minutes. Her flavor preference would vary from day to day and I spent time scouring all the local stores' shelves trying to find new kinds. Near the end of January, the water-soaked biscuits started to play a bigger part in her diet and Garnet started showing interest in Zoe's food. In late February, she started eating uncooked sweet potato. On 2 March, we discontinued the evening feeding. At this point, Garnet was receiving just three feedings a day from us.

Garnet went onto exhibit for the first time on 18 March. This change caused us to alter our feeding method. If possible, we would feed her through the mesh on exhibit, but could always shift her and Zoe inside if necessary. Zoe and the other adults had no interest in the baby food, but we did have to do some distracting when offering the soaked biscuits and sweet potato. Another change occurred 5 April, when we discontinued the last feeding of the day. Instead, we separated Zoe in the creep cage and provided a large amount of soaked biscuits. Zoe's movements were somewhat hampered by the creep cage, so Garnet had time to eat her fill. We switched the first feeding to this same method on 27 April, but with additional diet items. On 30 May, the afternoon hand-feeding was discontinued.



Feeding Garnet on exhibit  
*Photo by Larry Griesmer*

There were also big changes to the social dynamic. On 19 June, after a very short illness, Michael died. The cause of death was determined to be acute cardiomyopathy. On 23 July, with no warning, Rafiki died. Her cause of death was another type of heart issue with evidence of previous vascular events. Their deaths meant our colobus group was just Zoe and Garnet.

The current colobus management protocol still caters to Garnet's growth. She is separated from Zoe in the morning and offered 10 soaked biscuits. She is kept separated for about 30 minutes. In the late morning or early afternoon, the group receives browse or extra greens. In the late afternoon, she is again separated and offered the soaked biscuits for about 30 minutes. Then she and Zoe are put back together and their main diet offered. Garnet is weighed every other week.

## Discussion

Our number one priority for Garnet was always to get her back with the social group. To that end, we initially limited the number of people caring for her to maintain consistency. Documentation and communication, within the group and to other zoos with similar experiences, were deemed very important to a successful outcome.

Animals always teach us to expect the unexpected, so in hindsight it seems I should have better analyzed the signs I was seeing regarding how far along Zoe was in her second pregnancy at MPZ. Again, I was out of state when Garnet was born, but I would advise not to get caught up in the



excitement of the moment and forget to follow written protocols. The multitude of unfamiliar faces was probably a stress factor for Zoe immediately following birth.

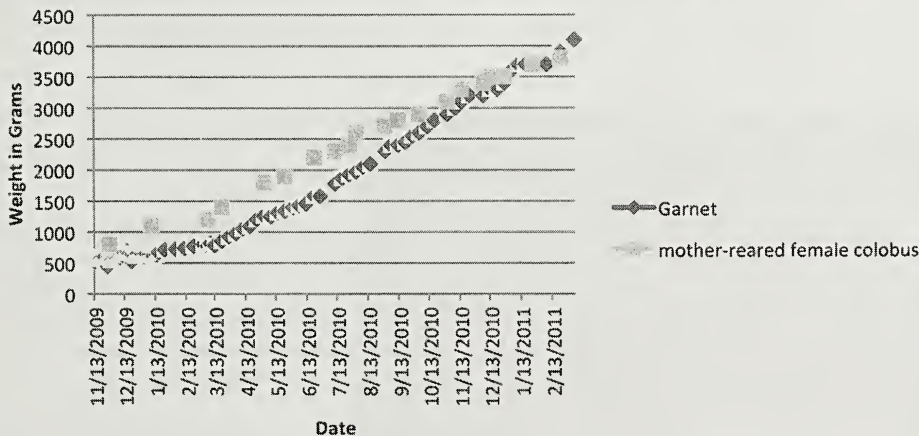
Even with our blood work, ultrasounds, and exams, we never found conclusively anything wrong with Garnet. There were, of course, more tests we could have run, but at some point one has to ask what we'd even be able to do with the results. Now that she's physically larger, I would like to have her re-examined to see if anything is more obvious. At over one year, she has finally caught up with the weights of a female mother-reared colobus\* (see Graph 1). Her motor skills and behaviors are on par for any colobus her age. Most of the day-to-day management of the group is done with protected contact, but for now I have maintained the ability to enter holding and the exhibit with Garnet. She does very well with tactile contact, is an active participant in regular weighing sessions, and we were able to give her vaccinations without sedation.

The reproductive future of Zoe and Garnet is uncertain as well. It was a tremendous expenditure of resources and staff time to raise Garnet. Management felt that Zoe had been given plenty of opportunities to demonstrate maternal care, so for now they have no plans to breed her again. We don't know if Garnet is a healthy animal, so it's hard to decide her



Garnet being weighed  
*Photo by Jessica Franck*

**Graph 1 - Garnet's weights compared to a mother-reared female colobus at corresponding ages.**



Graph 1

reproductive status. In the short term, we would like to have her in a situation where she is exposed to another colobus raising its offspring in case she should ever have the opportunity to breed in the future. We still miss Michael and Rafiki and hope to add more members to our group soon, especially now that Garnet is larger and perhaps less at risk for infanticide.

Having the chance to help raise Garnet has been one of the most wonderful things in my life. In the beginning, the uncertainty of her health and demands of her care, combined with still having a full work load, made for a lot of stress that didn't end when the work day did. But watching her continue to fight and eventually appear to thrive has made me a better zookeeper and person.

### Acknowledgements

Tremendous thanks and gratitude to Maria Spriggs, DVM; Kristine VanHoosier, veterinary assistant; Amos Morris, Director MPZ; Sue Lindsey, Animal Curator MPZ; Brad Fichter, former Animal Curator MPZ; Denny Vogt, Assistant Animal Curator MPZ; Melanie Ransom, Rachel McKee, Loretta Manning, and Mary Ann Cisneros, Keepers MPZ; Staci Goforth, former Keeper MPZ; Liz Zimmerman, Keeper Oregon Zoo; and the many AZA institutions that provided information on their own experiences with colobus infants, especially the Toledo Zoo.

### In Memoriam

Michael and Rafiki were tremendous ambassadors for their species. It was a pleasure and an honor to have worked with them.

### Footnotes

<sup>i</sup>Communication with Lynn Killam (Houston Zoo) in March 2010

<sup>ii</sup>Davies, A. Glyn and John F. Oates. *Colobine Monkeys: their ecology behaviour, and evolution*. Great Britain: Cambridge University Press, 2004: p. 326-328

<sup>iii</sup>Davies and Oates, p. 317.

<sup>iv</sup>Davies and Oates, p. 56.

<sup>v</sup>Communication with Liz Zimmerman (Oregon Zoo) in March 2011

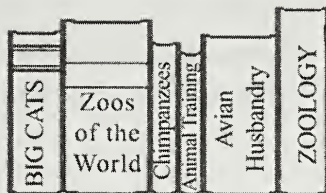
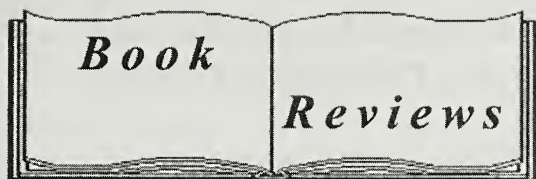
## Western Black Rhino Declared Extinct

“No wild black rhinos remain in West Africa, according to the latest global assessment of threatened species. The Red List, drawn up by the International Union for Conservation of Nature (IUCN), has declared the subspecies extinct. A subspecies of white rhino in central Africa is also listed as possibly extinct, the organization says.

The annual update of the Red List now records more threatened species than ever before. The IUCN reports that despite conservation efforts, 25% of the world's mammals are at risk of extinction. As part of its latest work it has reassessed several rhinoceros groups.

As well as declaring the western black rhino (*Diceros bicornis longipes*) extinct, it records the northern white rhino (*Ceratotherium simum cottoni*), a subspecies in central Africa, as being on the brink of extinction. The last Javan rhino (*Rhinoceros sondaicus*) outside Java is also believed to have disappeared. Overall, numbers of black and white rhinos have been rising, but some subspecies have been particularly vulnerable to poaching by criminal gangs who want to trade the animals' valuable horns.” Source: Daniel Boettcher, BBC News, [www.bbc.co.uk](http://www.bbc.co.uk), 9 November 2011





## **Beaded Lizards & Gila Monsters Captive Care & Husbandry**

by Bernd Eidenmuller and Manfred Reisinger, 2011  
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Hardback 157 pages, 180 full color photos

The propagation and husbandry of herptiles in the world has come a long long way since the First International Symposium on this subject was held in Frederick, MD in July of 1976. This book beautifully illustrates just how far we have come.

Undoubtedly THE best book on this topic published to date, it has all the elements of a scientific treatise and a child's first lizard book. It begins with background, as in evolutionary taxonomy, myths and folklore, life history and distribution in the wild, even some information on the venom, venom apparatus, first aid treatment and therapy. Following this are the remainder of its 157 pages touching on housing, diet, sexing, overwintering, breeding, climatic charts, species accounts and more.

The 180 full color photographs are exceptional and well chosen. You might be tempted to consider it a picture book if it were not for the excellent factual material embedded between the pretty pictures.

In some places, you can tell that it is a translation from the German language but it is also a great example of the attention to detail that many European herptoculturists bring to their avocation and/or vocation. Too often this is sorely lacking in articles and books written and published for the reptile enthusiasts in the U.S.

I skimmed the book, then read the book, then looked over the book again trying to find weaknesses. I failed. No serious herptoculturist or helodermidophile (Yes, I made that up.) should be without it on their bookshelf.

If you buy this book, absorb its many factual offerings and follow them, you should have little difficulty in providing excellent care for and reproducing two of the world's most charismatic and unique lizard species.

*Reviewed by Richard Hahn, C.A.P.  
Executive Director,  
Global Wildlife Trust, Inc. dba  
Catoctin Wildlife Preserve and Zoo  
Thurmont, MD*



Gila monster at Catoctin Wildlife Preserve and Zoo  
*Photo by Richard Hahn, Catoctin Wildlife Preserve and Zoo*

# **Introduction of 1.1 Hand-Reared African Wild Dog Pups (*Lycaon pictus*) to 1.0 Surrogate-Reared Pup and Subsequent Formation of a Pack with 0.2 Adults.**

*By*

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## **Abstract**

Omaha's Henry Doorly Zoo (OHDZ) pulled 1.1 African wild dog (*Lycaon pictus*) pups for hand-rearing after rejection by their mother. Binder Park Zoo (BPZ) pulled and surrogate-reared 1.0 pup due to complications with the litter. Historically, hand/surrogate-rearing is not a standard management practice for this species for either institution. Omaha's Henry Doorly Zoo collaborated with Binder Park Zoo to introduce the unrelated pups in an effort to improve social quality of life and create a pack dynamic. Even though the Binder Park Zoo pup was five weeks younger than the 1.1 OHDZ pups, the introduction was a success. The newly formed 2.1 puppy pack was in place for a short time when OHDZ initiated the introduction of the pups to the resident adult pack. The reintroduction of hand/surrogate-reared pups of this species to an existing pack has not been recorded in captivity. After four days of "howdy" introductions to the existing pack (0.4), and successful integration of 0.2 adults, management decisions were made about introductions to the remaining 0.2 adults. These decisions were based on scheduled animal transfers and behavioral observations from the previous four days. After the changes were implemented, the 2.1 pups were successfully integrated into a pack dynamic with 0.2 adults, creating a new pack of 2.3 African wild dogs.

## **Introduction**

There are a myriad of complicated challenges that accompany captive breeding of exotic animals: assigning optimal genetic pairings in order to ensure population sustainability; mate introductions and the fluctuation of captive breeding cycles; providing the optimum environment for parturition that best mimics the natural habitat; and judging whether or not to intervene even when genetically valuable specimens may die due to lack of maternal instincts. If removing offspring and hand-rearing them is necessary, then the ultimate challenge and goal is to raise future generations of the species so that they may possess the appropriate behaviors to breed, go through parturition, and raise their own offspring independently. In this paper we will further explore these challenges as they arose, and detail the successes of rearing an animal with a sophisticated social order, with the realization that the sooner it can be integrated into a social group the better chance it would have to integrate into future packs, breed, and assist or rear its own offspring. Building off the success of the Pittsburgh Zoo and PPG Aquarium in rearing a litter with a domestic whelping bitch, and consulting with Dr. Greg Rasmussen, a field researcher from Zimbabwe, staff at Binder Park Zoo and Omaha's Henry Doorly Zoo were able to take the next step in ensuring valuable genetics will be carried on through the African Wild Dog SSP®.



### **Method One - Pup Rearing at Binder Park Zoo**

In the spring of 2009, Binder Park Zoo received a male African wild dog to be paired with the currently housed female. Previously the female wild dog had been on two different types of birth control: an MGA implant in April 2004 and Deslorelin contraceptives, received in August 2006. In 2007, during a routine physical exam, a small remaining piece of a MGA implant was removed. In November 2009, three weeks before birth, it was determined via ultra sound that the six-year-old female wild dog, Taji, was expecting 10-13 pups. BPZ staff opted to allow the eight-year-old male, Dartegnan, access to the female and den during the entire parturition. This decision was based on his display of good mate behaviors, such as stashing food and regurgitating for the female. Her delivery did not occur within a normal delivery timeframe and needed veterinary assistance.

She started displaying behaviors that indicated labor during a period of 72 hours before the birth of the first pup. This included a period of high agitation, digging, and hoo calling over a period of 48 hours before birth of the first pup. Ninety minutes before the delivery of her first pup, she was observed digging and hoo calling several times. She also consumed large amounts of water and vomited several times. On 20 November 2009, prior to delivering the first pup, she passed mucous with a green tinge. The first five pups were delivered and consumed periodically over the next four hours. Nine hours had passed without the delivery of any other pups so the assistance of oxytocin was initiated in the late morning of 21 November 2009. The next four pups were delivered within the hour.

Since the entire process was monitored via cameras, it was verified that all pups, except the ninth pup, were stillborn. The ninth pup was born alive that afternoon and Taji was showing good maternal behavior. The pup appeared to nurse once within an hour of birth, and throughout the rest of the day it was vocal, active, and continued to nurse. The live pup disappeared from camera sight 16 hours later (early morning on 22 November 2009); the assumption was made that it had died and was consumed. In order to confirm this, a keeper entered the den for a thorough check. Taji was later observed hoo calling, digging, straining, and due to the continuation of behaviors that coincided with her previous labor, she received another dose of oxytocin that morning. Within the hour, the last pup was born. It was late morning on 22 November 2009, 24 hours after the previous pup. The pup was stillborn and thus consumed. Whether or not this was due to contraception complications remains unclear. In 2010, six weeks before birth, it was again determined via ultra sound the female wild dog was expecting seven pups. The male was again allowed access to the female during parturition. Taji's second delivery did occur in a more natural timeframe and did not need veterinary assistance. She started to display high agitation and behaviors that indicated labor 24 hours before birth of the first pup. During these 24 hours, her behaviors alternated between periods of hoo calling, digging, drinking, and resting. The previous year, she was observed vomiting right before giving birth to pups; this was used to indicate a precursor to full labor. In the early hours of 1 December 2010, 30 minutes before delivery of first pup, she was pacing and whining. This was also accompanied by vomiting. All seven pups were born within six hours of each other, and were alive and vocal. Taji was displaying good maternal behavior, cleaned all pups, and was seen gathering them up in a pile around her teats. She was observed to be nursing within an hour of the last pup's delivery. Over the next 24 hours the pups appeared active, vocal, and continued to nurse.

In the afternoon hours of 2 December 2010, the pups were observed spread throughout the den, in stark contrast to the way they had been gathered together previously. At 1930hrs, a camera check indicated that not all pups were visible. The pups that were visible did not seem to be as mobile or vocal as seen beforehand. The female was observed carrying one around, whimpering, bringing it in and out of the den, and nudging it on the ground. The pup did not seem to be moving or vocalizing and she consumed it. This behavior between the female and pups continued over the next 15 minutes while the veterinarian was being consulted; over this interval, five pups had been consumed. The Curator of Collections decided to pull the rest of the pups, basing the decision on two reasons: firstly, if the pups died shortly after separation, it may be possible to ascertain information about the cause of



death; secondly, if two survived, there was the option of raising them with a domestic lactating bitch. Additionally, the BPZ staff was aware of two other facilities expecting the birth of pups, therefore cross-fostering could also be an option.

After separation of the female, BPZ staff discovered there were only two pups still alive; however, both were cold to the touch and had empty bellies. Veterinary staff administered triage immediately to stabilize them and started hand-rearing protocol—given by Pittsburgh Zoo and PPG Aquarium—until a long-term care plan could be determined. Mike Quick, the SSP® coordinator, was contacted to discuss possible courses of action. Brookfield Zoo recently had a litter that was already several weeks old and was the only litter in which the parents were successfully rearing the pups. As this was their first litter, the decision was made not to disrupt the progress of their pack.

Omaha's Henry Doorly Zoo had been hand-rearing two pups that were close to being weaned and offered to accept the BPZ pups. As a result, BPZ decided the best option would be to acquire a domestic lactating bitch to rear the two pups until weaned. The feeling was that if a domestic dog raised the pups, they would have a better chance of integrating with other African wild dogs in the future. If both pups survived, they would be reintroduced back to the breeding pair at Binder Park Zoo. In the event of losing one pup, the plan was to wait until the other was weaned and then send it to Omaha's Henry Doorly Zoo to be integrated with the two pups there and then reintroduced to a pair of adults.

Finding a lactating bitch with the appropriate temperament to match the needs of African wild dog pups took a few days. BPZ acquired a black Labrador, Bella, from a county animal control shelter. Bella displayed a solid bitch temperament and her last pup was adopted just as BPZ staff arrived to evaluate her temperament. Once adopted, she was treated with preventative deworming and flea medication. Both pups were introduced to Bella and encouraged to nurse from her, which occurred



Two-day-old African wild dog pups at Binder Park Zoo, which were pulled for surrogate-rearing.

*Photo by Angel Mitchell*



Black Labrador surrogate "Bella" with "Bomani" at Binder Park Zoo

*Photo by Rebecca Bolen*



quickly. As suggested by the Pittsburgh Zoo and PPG Aquarium staff, BPZ staff opted to continue to offer a bottle to keep the pups accustomed to the nipple in the event that the domestic bitch could not produce enough milk and supplemental feeds became necessary.

On Day 6, one pup was observed to be experiencing problems with defecation and exhibited considerable bloating. The day after introduction to Bella, the decision was made to perform exploratory surgery of the abdomen in an attempt to determine the source of the complications. The pup died over night after the surgery. The surviving pup, Bomani, was kept with Bella, and thus maintaining limited human interaction. On Day 24, once tooth eruption became visible, the staff introduced solids to the pup. The transition to solids continued over the next 17 days. The pup was fully weaned in 18 days, which coincided with the whelping bitch drying up. Bomani was then transported to Omaha's Henry Doorly Zoo at 49 days of age.

### **Method Two - Pup Rearing at Omaha's Henry Doorly Zoo**

For the first time, Omaha's Henry Doorly Zoo was expecting a litter of pups with the presence of yearlings still in the pack. After consulting with the Denver Zoological Society and the Bronx Zoo (WCS), OHDZ separated the sire and dam from the rest of the pack as a precautionary measure. This occurred on 25 October 2011 and was maintained through parturition. During this time, the sire, Lefty, displayed increased stress levels as noted by the keepers. By the evening of 2 November 2011 the dam, Desi, had given birth to six puppies. During the morning observation rounds on 3 November 2011, eight puppies were present. All puppies were moving and vocal; however, some were not completely cleaned and were spread throughout the den box. Since the female was still in the den box with them, the staff did not have any major concerns. Lefty was still showing signs of high stress and it appeared as though he was more interested in rejoining the pack than caring for Desi or the pups. During a visual check of the den on 3 November 2011 at 1445 hrs there were only three puppies observed in the den. Desi was seen with a pup in her mouth and the other two pups were separated on the bare concrete, wet and vocalizing. The management staff decided to pull the pups and try to hand-rear or surrogate-rear the last three pups based on knowledge of the Pittsburgh Zoo and PPG Aquarium's success. Upon arrival to the vet hospital, initial exams were performed on each pup. One female had a puncture wound to the head, possibly entering the sinus cavity. The other two pups were sexed as 1.1 and appeared relatively healthy. Supportive therapy was administered, body temperatures were brought up to a normal range, and they were placed in an isolette in order to aid in temperature regulation and facilitate observation.

The 1.2 pups were put on the hand-rearing protocol referenced in the AZA Animal Health Committee Infant Diet Protocols. The 0.1 pup with the head wound did not survive the first 24 hours. While continuing to hand-rear the 1.1 pups, OHDZ staff continued to search for a surrogate bitch through several sources. During this time, consultation with Mike Quick, the SSP® coordinator, suggested that the staff consider a possible fostering with other institutions expecting pups: Brookfield Zoo and Binder Park Zoo. Both of these packs were not due for another three to four weeks. For the next several weeks OHDZ continued hand-rearing as a result of not being able to obtain a surrogate. Following the AZA Animal Health Committee Infant Diet Protocol, until further contact with Dr. Greg Rasmussen revealed, through his field research, that African wild dogs require substantially more nutrition to obtain desired growth rate. After further consulting with Greg Rasmussen, and collaboration with BPZ, the reintroduction plans were modified. The decision was made to maximize socialization by creating a pack dynamic with the pups prior to the introduction of the 2.1 pups to the adult pack.

### **Integration - Puppy Pack at Omaha's Henry Doorly Zoo**

In records of captive wild dog populations it has never before been documented that pups from two different breeding pairs, hand/surrogate-reared independently from the adult pack, would be introduced to each other. All aspects of these introductions were recorded and observations were documented with an ethogram. Upon arrival of 1.0 pup, Bomani, the OHDZ staff addressed some

concerns about introducing the 1.1 pups to him. First there was a four-week age difference between the puppies, which meant that Bomani was half the size of OHDZ's 1.1 pups. Second, the staff wondered if the new scent or different parents would cause the other two pups to have aggression or inflict injuries towards Bomani. Also due to different hand-rearing styles, there was a concern that Bomani might not consume adequate amounts of food to continue his growth rate with the other two pups present. The last and biggest concern was if Bomani would be truly accepted by the bonded OHDZ pair.

The first stage of introductions of 1.0 pup to 1.1 pups included using a one by one-inch mesh-lined cage to "howdy" Bomani to the 1.1 OHDZ pups. This allowed nose-to-nose contact while limiting physical contact. After this initial contact was deemed successful, he was then transferred to a larger mesh cage allowing minimal physical contact. All behaviors observed indicated that there was no aggression or concern of physical injury. The next step was a free contact introduction; keepers were present in the stall to intervene if aggression occurred. As the proper behaviors were being displayed, extended times together progressed without keepers being present but still making observations via cameras. The final step was to leave the pups together for 24 hours while doing periodic visual checks on them. As a result of this gradual and well-monitored process, the puppy pack integrated without any issues. This was confirmed upon the observation of the three pups all resting together within a few hours of an introduction.

This puppy pack was allowed several weeks to strengthen their bond due to disruptions in the adult pack. Winter temperatures would not allow introductions to occur with the proper required inside and outside access. The 1.2 juvenile pack members were shipped out to other institutions. Furthermore, due to multiple chronic medical issues, the dominant male had to be euthanized. The dynamic of the adult pack experienced significant restructuring several times due to these events. There were several apprehensions that arose before the introduction of these two packs. The obvious concern was for the safety of the pups since they were still under six months of age and were still much smaller in size. The introduction of the puppy pack could also be a catalyst for increased aggression when coupled with the recent multiple reorganizations of the pack and the need for the existing pack members to reestablish hierarchy. Another factor that was weighed amongst the staff was which adult would be introduced first, second, and so on to minimize any detriment to the overall success of the introductions. The staff worried Bomani may be easily targeted as a non-related pup and attacked. In the event of escalating aggression, a separation plan also needed to be established. The following contingency plan was established: if the pups were introduced to the pack in the den and there was either aggression or lack of interest shown by the adults or pups, the introduction would be abandoned and OHDZ would maintain two separate packs.

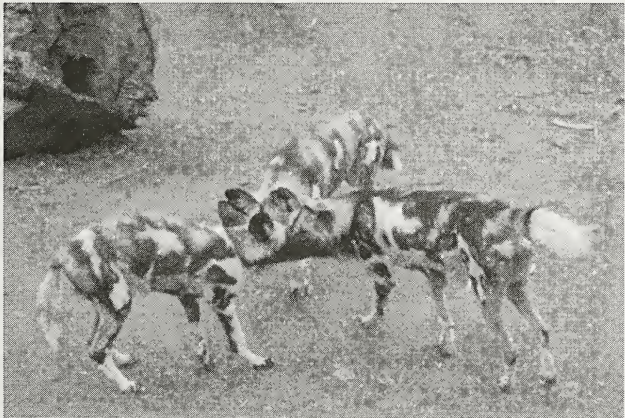
### **Integration - Adult Pack at Omaha's Henry Doorly Zoo**

Since this was not only the first time in captive records that independently reared pups would be introduced to each other, but also to a foreign adult pack, considerable precautions were taken. The stages of this introduction would follow a similar guideline as the introduction of the puppy pack. The first step was to bring the pups down from the nursery and introduce them to the right side of the indoor enclosure, with the adults locked on exhibit with no visual. With the pups contained in the right side of the inside enclosure, the center stall would be left empty and the adults would be given access to the left side stall. If all behaviors indicated appropriate positive interest for successful pack integration, then the staff would allow the adults to have access to the center stall in addition to the left stall and outside access. If positive behaviors continued through this process, the staff would introduce the first adult, the dominant female, separately from the rest of the adult pack. If this proved successful, the staff would bring in a second adult to continue the introductions. Once this pack was stabilized, the two female adult dogs and the three pups would then be introduced to the remaining two female adult dogs. If all introductions proceeded successfully, the staff would maintain the group as one pack, while maintaining close observations for pack formation breakdown.



The 2.1 pups were moved down to the adult holding area on 3 March 2011. Reinforcement was added to the chain link on the pup's side of the holding area with one-by-one-inch mesh to prevent bites. The 2.1 pups were allowed 90 minutes to explore the new "howdy" area before 0.4 adults were given access to the back run. The back run is a non-visual area outside the building, which allows vocal communication. During the puppy exploration time, positive sounds from the pack outside lead to allowing the adults access to the back run. As a result, the pups immediately went to the closed shift doors leading into the back run and whined and hoo called. Due to this observation, the staff decided to proceed to stage two, which gave the adults access to the left stall and a visual of the pups. After four days of close observation, the decision was made to select the dam of the 1.1 OHDZ pups as the first female to be introduced. This decision was based on the fact that Desi maintained the dominant position of the adult pack. The second dog that would be introduced was Dalmatian, the grandmother of the OHDZ pups, due to her position as subordinate in the pack. In further compliance with the predetermined plan, the two juvenile females would be the last to be introduced, provided that Desi and Dalmatian displayed protective behavior over the pups.

Desi and Dalmatian were given access to the center stall, which allowed nose-to-nose contact. Behaviors proved positive and full contact introduction was initiated. Desi was given full access to the pups, which immediately resulted in mutual interest between her and the pups. Submissive behaviors and vocalizations by the pups were displayed. Desi displayed nurturing behaviors towards the pups. Later on that day, Dalmatian was allowed full access to the group and her behaviors echoed Desi's. The decision was made to separate the puppies that night; this was based on inconsistent behaviors exhibited throughout the day between Desi and one of the juvenile females not yet introduced. It was believed that if the two adults already introduced to the pups were left separated from the juveniles throughout the night, severe altercations resulting in pack breakdown would occur. These beliefs were verified when the two adults were put back with the juveniles and fighting immediately occurred with all four females over the next hour. As a result of the fighting, and a previously assigned transfer to a different zoo in the next month, the two juveniles were separated from the pack. The following day, continued introductions of Desi and Dalmatian to the pups resumed, this time introducing them together to the pups instead of independently. These five were left together throughout the day and monitored through video recordings. Due to the positive behaviors that were witnessed, it was decided to leave them together overnight. The next morning all dogs were in good condition and within a few days all wild dogs were engaged in appropriate social behaviors. The five African wild dogs became integrated enough to sleep together in one large pack pile. The 2.3 African wild dog adult/puppy pack has been maintained as one pack ever since.



The newly formed 2.3 adult and puppy pack members investigating one another.

*Photo by Alysia Hess*

**Conclusion**

It was only through the collaboration and cooperation with other professionals in the field that this series of events allowed the welfare of these pups to not only be provided for, but to have the best possible outcome. By utilizing past experiences, adjusting and building on them, professionals in this field have the ability to push forth and evolve our practices to meet the challenges created through



captive management. Having young animals successfully reintroduced to an adult group will allow for the learning of natural behaviors that are undoubtedly necessary to not only survive but also to procreate in a social structure that is highly sophisticated in its nature.



Currently the pack is still intact and thriving.

*Photo by Rebecca Bolen*

### **Acknowledgements**

We would like to thank the staff at Binder Park Zoo and Omaha's Henry Doorly Zoo for all of their dedication and hard work. A special thank you to the keepers, veterinary staff and management at Binder Park Zoo who were vital to Bomani's survival. We would also like to thank the small mammal division, hospital crew and executive staff at Omaha's Henry Doorly Zoo for their imperative work that made these introductions possible and successful. We would also like to recognize the help given to us from outside sources: Mike Quick (SSP® Coordinator), Karen Vacco (Pittsburgh Zoo and PPG Aquarium), Dr. Greg Rasmussen (Painted Dog Conservation, Inc.), Dale Leeds (Denver Zoological Foundation), and Pat Thomas (Bronx Zoo/WCS). Without their experience and expertise this would not have been achievable.

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## Second Call for Papers

The Rosamond Gifford Zoo AAZK Chapter is pleased to host the 2012 National AAZK Conference from September 23-27, 2012. The Conference theme "On the Path Toward Conservation" will highlight *in-situ* conservation efforts, research projects and programs that encourage visitors to protect wildlife and wild places. We will be accepting abstracts for the following categories:



### Papers:

Authors will be allowed 15 minutes for a presentation with five minutes of Q & A immediately following. Abstracts should focus on the conference theme or innovative approaches to zoo keeping including animal welfare, conservation, husbandry, education and training.

### Posters:

Posters will be on display throughout the conference with a scheduled Q & A session to be determined.

### Guidelines for Abstracts:

Abstracts should be no more than 250 words and submitted as a Microsoft Word document via e-mail to [submissions@rgzaazk.org](mailto:submissions@rgzaazk.org).

Please include the following information:

- Name of authors and presenter
- Institution / Affiliation
- Position / Title
- Title of Work (please specify poster or paper)
- AV requirements
- Contact information (please include e-mail)

### Deadline for Abstracts is May 1, 2012

Authors will be notified regarding acceptance by 1 June 2012. All papers must be received by 15 July 2012 to be included in the conference program.

For more information on the 2012 National AAZK Conference, please visit our website at

**[www.rgzaazk.org](http://www.rgzaazk.org)**

**See You in Syracuse!**

# Conservation/Legislative Update

Column Coordinators: *Becky Richendollar, Columbia, SC*  
and *Greg McKinney, Philadelphia, PA*

*This month's column was put together by*  
Column Co-Coordinator *Greg McKinney*



## Javan Rhinos Now Extinct in Vietnam

We are sad to report that a recent analysis has confirmed the extinction of the Javan rhino (*Rhinoceros sondaicus*) in Vietnam. Data from a genetic analysis of 22 dung samples, collected by the Park and a WWF survey team from 2009 - 2010, confirmed that all of the samples belonged to one individual rhinoceros. That same individual was found dead in the park in April 2010, with a bullet in its leg and the horn removed – a clear case of poaching. The study was undertaken by Queen's University in Canada, funded by both IRF and WWF, and revealed that there were at least two rhinos alive when dung samples had been collected in 2004. The Vietnam population of Javan rhinos was only discovered in 1988. From the mid-1990s, a number of organizations were heavily involved in efforts to conserve the rhinos in Cat Tien National Park, but ultimately, ineffective protection – a problem in most protected areas in Vietnam - caused the species' extinction.

The Javan rhinoceros now numbers less than 44 animals, all living in Indonesia's Ujung Kulon National Park. We believe that there are only three to five breeding females in that population. Four Rhino Protection Units, funded by IRF and operated through our partner, Yayasan Badak Indonesia (YABI) have prevented poaching for more than 16 years.



One of the last Javan rhinos to be photographed in Vietnam,  
prior to their reported extinction in that country.

*Photo by World Wildlife Fund, Courtesy of International Rhino Foundation*

The loss of the Vietnam rhinos makes IRF's work in Ujung Kulon even more important, as that population now represents the only hope for the species. Over the past year, IRF, through its implementing partner Yayasan Badak Indonesia (Rhino Foundation of Indonesia) and supported by the Asian Rhino Project, Save the Rhino International, WWF, and other donors, has been working to expand the useable habitat for Javan rhinos in UKNP by creating the 4,000 hectare Javan Rhino Study and Conservation Area (JRSCA). The project intensifies active management in Gunung Honje (eastern portion of the park), with the short-term objective of providing more habitat to allow the population to increase. We are doing this by constructing small bridges, an electric fence, and a patrol road; eradicating invasive species that have taken over a good portion of the habitat; planting rhino food plants; providing a water supply and saltlick; and constructing additional guard posts. The continued survival of the Javan rhino depends on their population increasing in numbers as rapidly as possible, and in spreading the population out so



that ‘all the eggs are not in one basket’. The JRSCA eventually will serve as a ‘staging ground’ from which translocations to a suitable, secure second site can occur. Source: *International Rhino Foundation*, 25 October 2011

**Editor’s Note:** *Bowling for Rhinos helps support our Conservation Partner, International Rhino Foundation, and helps conserve the world’s last remaining Javan rhinos. Please plan to make 2012 your Chapter’s best BFR season ever!*



### **Wildlife CSI Positively Identified Bat Killer**

Researchers say they have definitively identified what causes white-nose syndrome in bats: a fungus. The journal *Nature* today reports that exposure to the fungus *Geomyces destructans* resulted in white-nose 100% of the time among an experimental colony of hibernating little brown bats (*Myotis lucifugus*). The disease is named for the fuzzy white material that grows on the bats’ muzzles while they hibernate over the winter in caves. Miller-McCune has been following the explosion of white-nose since 2008, when David Richardson wrote about a new and mysterious malady that had catastrophic consequences for bat colonies in the Northeastern United States. Since then, the disease has spread dramatically to 16 U.S. states and four Canadian provinces, exterminating up to 80% of the bats in the most impacted areas. Beyond feeling bad for bats, the animals are credited with saving farmers billions of dollars by eating bugs that would otherwise eat their crops.

Even at the dawn of the threat, scientists such as David Blehert, head of diagnostic microbiology at the USGS’ National Wildlife Health Center, had a strong hunch that this particular fungus was the culprit. The fungus was found on bats with white-nose, but researchers couldn’t be sure if it caused the disease or was a symptom. Their efforts to confirm or deny this suspect’s culpability created an excellent opportunity to watch science in action. One confusing clue arose when the fungus was found on bats in Europe — and those critters were healthy. The paper released in October speculates that Europe’s bats have adapted to the fungus, which researchers know has been there for at least three decades, while its arrival on U.S. shores presented it with a “naive population of animals” ripe for devastation. Now, with assurance that the fungus is the cause of the malady, officials can better craft techniques for saving the bats. Source: *Miller-McCune, Michael Todd*, 26 October 2011

### **U.S. Fish and Wildlife Service Releases Annual List of Candidates for Endangered Species Act**

The U.S. Fish and Wildlife Service has released its *Candidate Notice of Review*, a yearly appraisal of the current status of plants and animals considered candidates for protection under the Endangered Species Act (ESA). Three species have been removed from candidate status, three have been added, and seven have a change in priority from the last review conducted in November of 2010. There are now 244 species recognized by the Service as candidates for ESA protection. “The candidate list offers the Service and our partners a unique opportunity to address the threats to these species through voluntary conservation efforts on public and private lands,” said Service Director Dan Ashe. “We will continue developing conservation strategies and programs that guide these conservation efforts and provide predictability to landowners undertaking actions to conserve non-listed species.”

Candidate species are plants and animals for which the Service has enough information on their status and the threats they face to propose them as threatened or endangered, but developing a proposed listing rule is precluded by higher priority listing actions. Candidate species do not receive protection under the ESA, although the Service works to conserve them. The annual review and

identification of candidate species provides landowners and resource managers notice of species in need of conservation, allowing them to address threats and work to preclude the need to list the species. The Service is currently working with landowners and partners to implement voluntary conservation agreements covering five million acres of habitat for more than 130 candidate species.

The Service is working to make implementation of the ESA less complex, less contentious, and more effective. To further efforts for improving ESA implementation, the Service filed a multi-year listing work plan in the U.S. District Court for the District of Columbia on 10 May 2011, developed through a settlement agreement with WildEarth Guardians and a separate, complementary settlement agreement with the Center for Biological Diversity on 12 July 2011. These historic agreements were approved by Judge Emmet Sullivan in Washington, D.C. on 9 September 2011, and will allow the Service to more effectively focus its efforts on providing the benefits of the ESA to those imperiled species most in need of protection. This work plan will enable the agency to systematically, over a period of six years, review and address the needs of candidate species to determine if they require ESA protection. A list of these species is available at [http://www.fws.gov/angered/improving\\_ESA/listing\\_workplan.html](http://www.fws.gov/angered/improving_ESA/listing_workplan.html).

The complete notice and list of proposed and candidate species appears in the *Federal Register* and can be found online at <http://www.fws.gov/angered/what-we-do/cnor.html>. Source: *USFWS*, 25 October 2011

## Wind-energy Project Proposed in California Threatens Thousands of Birds

Conservation groups told the Kern County Board of Supervisors that a large-scale wind-energy project proposed for the southern Sierra Nevada needs to go back to the drawing board and be redesigned to avoid risks to endangered California condors (*Gymnogyps californianus*), golden eagles (*Aquila chrysaetos*) and other rare bird species.

The groups filed a legal challenge in Kern County Superior Court seeking to reopen the environmental review for the 100-plus-turbine wind project approved by the county last month. "This wind project highlights the urgent need for a smart-from-the-start renewable energy strategy that guides development away from sensitive wildlife habitat to places with the lowest chance for conflicts," said Kim Delfino with Defenders of Wildlife. "The proposed site is in an important bird migration corridor and isn't an ideal place for large-scale wind energy, as evidenced by the impacts nearby wind projects have already had on imperiled birds. Despite our inability to reach an agreement with NextEra Energy, we are open to working with the company to reconfigure the project to minimize harm to sensitive wildlife.

With changes, we believe the project can move forward."



Golden eagle at the San Francisco Zoo

*Photo by Jason Hickey/Wikipedia*

The conservation groups remain hopeful that the project can be redesigned to avoid the most sensitive areas, greatly reduce the risk to California condors and golden eagles, and provide enhanced mitigation measures such as requiring the use of radar to monitor for incoming flocks of birds so that turbines can be shut down in time to avoid massive collisions. The groups have met several times



with the developer prior to filing the lawsuit, but have yet to resolve these concerns. “There’s plenty of room in the state for both wind projects and the California condor to thrive,” said Ileene Anderson, a biologist with the Center for Biological Diversity. “But if condors and wind turbines are going to coexist, those turbines need to be sited carefully and measures have to be taken to minimize the risk that condors will be killed. Unfortunately, this project fails to do that.”

The proposed project is directly north of the Pine Tree Wind project, which is under federal investigation for killing at least six legally protected golden eagles. More than 50 sightings of golden eagles were made, and some 15 golden eagle nests found, within 10 miles of the North Sky site during an environmental review of the project. The alarming potential for impacts to rare and endangered species prompted warnings from the U.S. Fish and Wildlife Service and the California Department of Fish and Game in letters to the county supervisors. The Fish and Wildlife Service wrote: “The first full year of fatality monitoring [for the Pine Tree Wind project] resulted in an estimated 1,595 fatalities per year, which per megawatt (11.8 fatalities/megawatt) is among the highest fatality rates being recorded in the nation...it’s reasonable to estimate that the proposed project would have avian fatality rates equal to or greater than those observed at the adjacent Pine Tree Wind Facility.”

Kern County officials approved the project despite the warnings from wildlife agencies and conservation groups, allowing the project to move forward without having to undertake sufficient conservation measures to offset or minimize impacts on wildlife. Source: *Center for Biological Diversity*, 20 October 2011

### **Sustainable Bushmeat Harvesting Is Possible, Finds UN Report**

Wild mammals, birds, reptiles and amphibians are disappearing from the world due to overexploitation for bushmeat - the legal and illegal trade in the meat and other parts of wild animals. Now, a new United Nations report says sustainable bushmeat harvesting is possible, but only if governments combine new mechanisms for monitoring and law enforcement with new management models, such as community-based management or game-ranching. Finding alternate means of livelihood for residents of forests and other wild lands also will help conserve vanishing species.

Written by Nathalie van Vliet, the report, “*Livelihood Alternatives for the Unsustainable Use of Bushmeat*,” was prepared for the Bushmeat Liaison Group of the Convention on Biological Diversity, with assistance from the wildlife trade monitoring network TRAFFIC and financial support from the European Union. “I trust that this publication will encourage concrete action to halt the overharvesting of bushmeat and the loss of biodiversity, and thus maintain essential ecosystem services and improve the quality of life for the rural poor in tropical and subtropical countries,” said Ahmed Djoghlaif, executive secretary of the Convention on Biological Diversity.

“Because bushmeat plays a crucial role in the diets and livelihoods of people, options to reduce harvest levels, other than ‘blind banning,’ have been investigated both by conservation and development planners,” writes van Vliet. The report addresses small-scale food and income alternatives to bushmeat in tropical and sub-tropical countries based on the sustainable use of biodiversity. The report was informed by the discussions of experts representing 43 governments and UN agencies, international and national organizations, and indigenous and local community organizations, who met in Nairobi, Kenya in June. They acknowledged that classic approaches and international efforts are not reversing the growing trend of unsustainable bushmeat harvesting. The report sets forth their recommendations to the international community and to concerned national governments and stakeholders.

“There is compelling evidence that the scale of current hunting is a serious threat to many forest species and ecosystems across the world. This threatens both people and the biodiversity they rely upon,” said Steven Broad, executive director of TRAFFIC International. “The reality in rural Africa is that for the greater majority of people, bushmeat represents a vital dietary item, but high variations

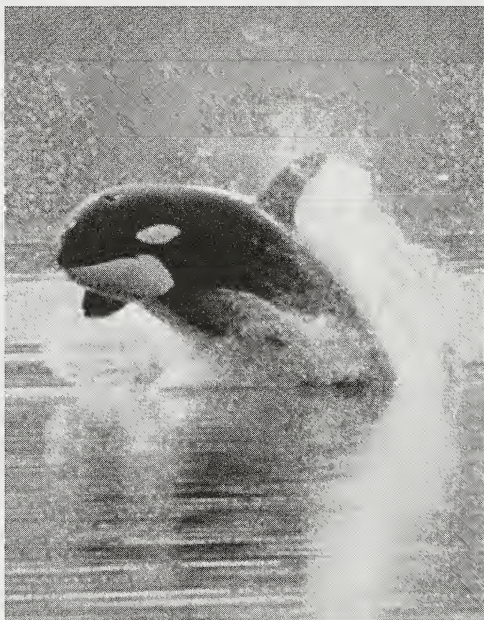
across the continent exist,” writes van Vliet. Estimates of bushmeat harvest across the Congo Basin range between one and five million tons a year. In the Brazilian Amazon, subsistence hunters have been estimated to harvest some 23.5 million individual animals annually for food. The yearly market value of wild game meat harvested by rural populations is estimated at US\$191 million, second only to timber as a forest product. In Asia, the true scale and value of the wildlife trade are unknown, as much of the trade is carried out through informal networks, and not documented in government statistics. Many countries in the region including, Cambodia, Indonesia, Laos and Vietnam, act as sources of wildlife that is traded and consumed.

To curtail bushmeat hunting to a sustainable level, the report recommends community wildlife management and other improved wildlife-management approaches, such as game-ranching and hunting tourism. “Mini-livestock” can be produced on a sustainable basis for food, animal feed and as a source of income, the report recommends. These wild animals, such as bush rodents, guinea pigs, frogs or giant snails, can be raised on small farms or in backyards. Other alternative livelihoods to bushmeat hunting, such as beekeeping and other sustainable harvests of non-timber forest products, should be supported, the report says. The report recognizes the need to clarify and define land-tenure and access rights, improve monitoring of bushmeat harvesting and trade, and enhance enforcement of bushmeat-related laws. “Sustainable utilization of wild resources can both guarantee human well-being and the long-term survival of those animal species targeted for consumption by millions of people worldwide,” said Broad. “This study lies at the nexus of conservation and development, biodiversity and human livelihoods.” Source: *Environment News Service, 25 October 2011*

### **SeaWorld Sued by Animal Rights Advocates over Orcas, Citing “Slavery”**

In the first case to apply the slavery amendment of the U.S. Constitution to non-human creatures, animal rights and marine mammal advocates have asked a federal court to declare that five orcas (*Orcinus orca*) are being held as slaves by SeaWorld Parks & Entertainment. Plaintiffs are seeking an injunction freeing the orcas from “bondage” at two SeaWorld locations and placing them “in a habitat suited to their individual needs and best interests.” The lawsuit was filed in the U.S. District Court for the Southern District of California in San Diego by the nonprofit People for the Ethical Treatment of Animals, three marine mammal experts, and two former SeaWorld orca trainers.

“All five of these orcas were violently seized from the ocean and taken from their families as babies,” says PETA President Ingrid Newkirk. “They are denied freedom and everything else that is natural and important to them while kept in small concrete tanks and reduced to performing stupid tricks.” The lawsuit is based on the text of the 13<sup>th</sup> Amendment, which prohibits the condition of slavery without reference to “person” or any particular class of victim, says general counsel to PETA, Jeffrey Kerr. “Slavery is slavery, and it does not depend on the species of the slave any more than it depends on gender, race, or religion,” Kerr said. “The 13<sup>th</sup> Amendment prohibits slavery, and these orcas are, by definition, slaves,” Newkirk contends.



*Orca (Orcinus orca)*

*Photo by Minette Layne/Wikipedia*



The five wild-captured orca plaintiffs are Tilikum and Katina, both kept at SeaWorld Orlando; and Kasatka, Corky and Ulises, all three confined at SeaWorld San Diego. The orcas are represented in the lawsuit by what the law refers to as their “next friends.” These people are Ric O’Barry, a former orca and dolphin trainer and the star of the Academy Award-winning documentary *The Cove*; marine biologist and orca expert Dr. Ingrid Visser; Orca Network founder Howard Garrett; and former SeaWorld trainers Samantha Berg and Carol Ray, as well as by PETA.

The plaintiff animals are members of the *Orcinus orca* or “killer whale” species, the largest species of the dolphin family. Orcas in the wild live long lives, with males living up to 60 years and females living up to 90 years. In contrast, the lawsuit contends, the mean life span in captivity is just 8.5 years.

The lawsuit argues that captive orcas, including the plaintiffs, display physiological and behavioral indicators of stress and trauma. “Stress derives from many aspects of captivity, including the changes in social groupings and isolation that occur in captivity. Social relationships play a critical role in the lives and well-being of orcas.” Source: *Environment News Service*, 26 October 2011

### Protecting Endangered Species, One Letter at a Time

Sales of a new premium postage stamp are helping support international wildlife conservation projects for tigers, great apes, and other endangered animal species. The U.S. Postal Service began offering the Save Vanishing Species stamps Sept. 20, 2011 at post offices nationwide and online at [www.USPS.com](http://www.USPS.com) following a release ceremony at the Smithsonian's National Zoo in Washington, D.C. An illustration of an Amur tiger cub is featured on the stamp, which costs 55 cents—11 cents more than



a first-class mail stamp. The Amur, or Siberian tiger (*Panthera tigris altaica*) is one of six remaining tiger subspecies, all of which are found only in Asia, according to the World Wildlife Fund. As few as 3,200 tigers remain in the wild, where they are threatened by poaching and habitat loss, the WWF says.

Revenue generated by the sale of the Save Vanishing Species stamps will supplement the Multinational Species Conservation Funds, which support programs such as those protecting wild tigers. The U.S. Fish and Wildlife Service administers the MSCF, which include the

African Elephant Conservation Fund, Asian Elephant Conservation Fund, Great Ape Conservation Fund, Rhinoceros and Tiger Conservation Fund, and Marine Turtle Conservation Fund. Congress authorized the Save Vanishing Species stamps in 2010. Passage of the law was spearheaded by the Wildlife Conservation Society and the WWF and was supported by the 33 organizations comprising the Multinational Species Coalition, of which the AVMA is a member.

“The stamp provides a unique opportunity for the American public to work with the federal government to contribute to saving some of our most beloved threatened species,” said Herb Raffaele, chief of the USFWS Division of International Conservation. “A commitment to the stamp will demonstrate that Americans really care about wildlife conservation abroad.” Source: *American Veterinary Medical Association*, 26 October 2011

### New Bat Species Named After WCS Conservationist

Call him Batman. The Wildlife Conservation Society’s Executive Director for Asia Programs Joe Walston has received an honor befitting of the Caped Crusader himself – a new species of bat has been named after him. In honor of Walston’s work to save bats and other wildlife in Southeast Asia, a group of scientists have dubbed the newly discovered bat species *Murina walstoni*, or Walston’s tube-nosed bat. The researchers, Csorba Gabor of the Hungarian Natural History Museum, Nguyen Truong Son of the Institute of Ecology and Biological Resources, Ith Saveng of the Royal University of Phnom Penh, and Neil Furey of Flora and Fauna International describe the new species, along

with two other new bats, in a recent issue of the *Journal of Mammology*. Scientists discovered the small brown-and-white bat during surveys in the Van Sai Protected Forests in northeastern Cambodia. Little is known about Southeast Asia's tube-nosed bats, so named for their extraordinary nostrils. Several new species have been described in recent years. Joe Walston began studying bats in Vietnam in 1994. In 2000, he found a critically endangered bat species in Cambodia that had only been caught once before – in 1912 from a cave in India nearly 2,000 miles away. He has been director for WCS's Asia programs since 2010.



Walston's tube-nosed bat (*Murina walstoni*)  
Photo by Julie Larsen Maher, Wildlife Conservation Society

"I am flattered and humbled to have this extremely rare species named after me," said Walston, who worked in Cambodia for eight years. "Important research like this confirms the richness of the region for biodiversity and increases the urgency to protect wild places while there is still time." Source: *WCS, 25 October 2011*

### Endangered Species Act Protection Considered for 374 Southeast Species

In response to a 2010 scientific petition from the Center for Biological Diversity and other groups, the U.S. Fish and Wildlife Service has found that protection of 374 freshwater species in 12 southeastern states may be warranted under the Endangered Species Act. The decision was made in accordance with a historic settlement agreement reached this summer between the Center and the government to push 757 of the country's least protected, but most imperiled, species toward Endangered Species Act protection. The 374 include 89 species of crayfish and other crustaceans; 81 plants; 78 mollusks; 51 butterflies, moths, caddisflies and other insects; 43 fish; 13 amphibians; 12 reptiles, four mammals and three birds. They are found in 12 states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia and West Virginia.

"Protecting these species will also protect rivers and streams that are a source of drinking water and recreation for Southeast communities," said Noah Greenwald, endangered species director with the Center. "Endangered Species Act protection will not just save these species from extinction but benefit millions of people."

Groups that joined the Center on the petition included Alabama Rivers Alliance, The Clinch Coalition, Dogwood Alliance, Gulf Restoration Network, Tennessee Forests Council and West Virginia Highlands Conservancy. For more information on the landmark settlement agreement: [http://www.biologicaldiversity.org/programs/biodiversity/species\\_agreement/index.html](http://www.biologicaldiversity.org/programs/biodiversity/species_agreement/index.html)

For a copy of the finding, more information on the campaign to address the Southeast freshwater extinction crisis, a copy of the petition, a list of species by state and a slideshow of a sample of the species:

[http://biologicaldiversity.org/programs/biodiversity/1000\\_species/the\\_southeast\\_freshwater\\_extinction\\_crisis/index.html](http://biologicaldiversity.org/programs/biodiversity/1000_species/the_southeast_freshwater_extinction_crisis/index.html) Source: *Center for Biological Diversity, 26 September 2011*



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